THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 83. NEW YORK, SATURDAY, OCTOBER 24, 1903. No. 17.

ORIGINAL ARTICLES.

THE HISTORY OF THE TUBERCULOSIS WORK AT SARANAC LAKE.*

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THIRTY years ago, when I went into the Adirondack wilderness to try to prolong my life, nothing would have seemed more improbable than that I should have lived to avail myself of the great honor of addressing you on such an occasion as this, or that anything which could occur in a life spent in those remote and primitive surroundings might be considered by the management of the Phipps Institute at all worthy of your attention to-night. I have to offer for your consideration only a brief retrospect of the advance which has been made in our knowledge and treatment of tuberculosis, and of the manner in which this knowledge has been practically applied in meeting the tuberculosis problem as developed, year by year, at Saranac Lake.

In 1873 the medical profession took little interest in the disease known as consumption, and the general public knew little about it except, perhaps, that it was thought to be always inherited and was considered almost invariably fatal. The immediate cause of the disease was unknown, and there was no recognized treatment for it except change of climate, and patients were sent principally to warm climates in a desultory sort of way because they coughed, and nothing that could be done for them at home was of any avail.

Each medical authority held differing and often very decided views as to the relative advantages of various climates; some finding the essential qualities of good climate for the consumptive to be warmth and equability, others laying special stress on dryness or elevation. Nevertheless, little by little it became evident that the great majority of consumptives died wherever they were sent, and the few recoveries which took place occurred in regions which differed entirely as to elevation, temperature, and dryness, and that as many patients recovered in the intense cold and storms of the high Alps and other mountains as in the warm, equable temperature and dryness of atmosphere to be found in such countries as Egypt and the south of France, while cures were reported from time to time in patients who had gone on long sea voyages or remained in indifferent climates where none of the conditions considered essential existed.

Wherever the consumptive was sent by his physician, little or no stress was laid upon regulating the habits of his daily life, beyond a recommendation to live out of doors and to exercise as much as possible, while for medication cod-liver oil and, later, creosote, were generally prescribed. There was little special hospital accommodation for the consumptive. Most hospitals admitted a few cases of tuberculosis to their general wards when they had empty beds, and the larger institutions, like Bellevue and Blackwell's Island in New York, had special wards devoted to consumptives. There were also a few homes for consumptives in existence, but no institution was presumptuous enough to announce that its object in taking these patients was anything beyond affording them a place where they might die. In the consumption hospitals in existence the administration of anodyne cough mixtures, and the keeping of the wards at a given temperature, were the only attempts at treatment, and in order to meet the latter condition and prevent the patients from taking cold the windows were generally kept tightly closed. This condition of affairs has come within my own personal observation in a hospital near Philadelphia.

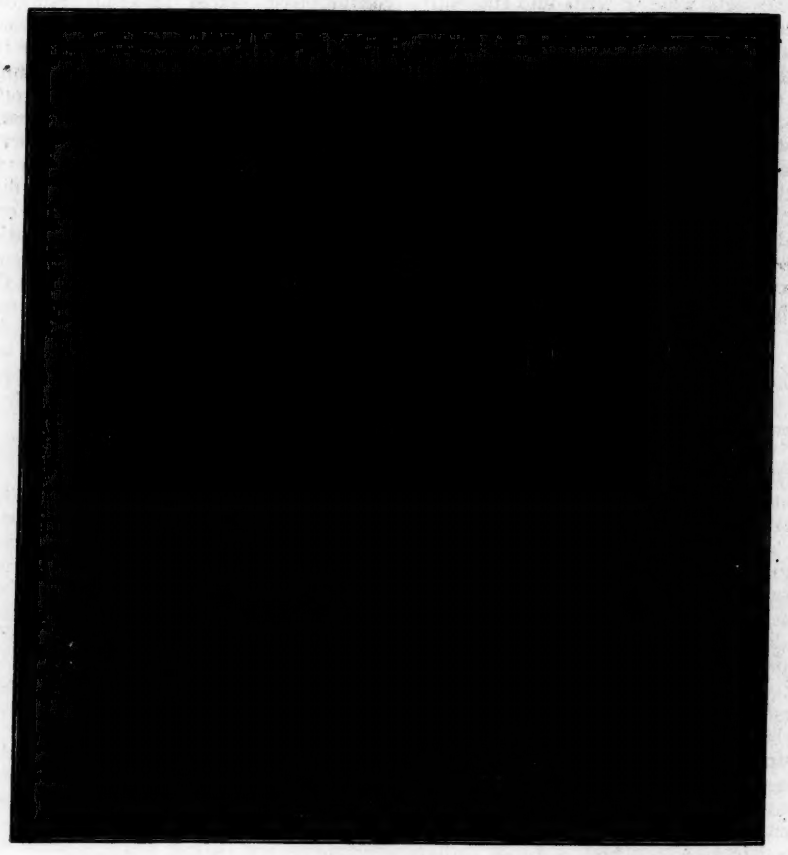
The climatic treatment was within the reach of only a very small class of patients; namely, the well-to-do; and they were not generally sent away until their physicians or they themselves became alarmed at the activity of their symptoms. The poor, and the large class of men and women who depend upon their daily work for their support, were left to their fate. No special stress was laid on the early recognition of the disease, as it was generally believed to be fatal. This, then, was approximately the attitude of the profession and the public toward tuberculosis when I went to the Adirondacks in 1873.

This region was at the time a real wilderness, visited during the summer months only by a few sportsmen, and it was then that I met Dr. Alfred Loomis, who, in spite of my critical condition, encouraged me in my determination to remain at Paul Smith's during the winter. My good wife cheerfully acquiesced in the plan, in spite of the gloomy prognostications of many medical friends who tried to dissuade me from so rash a step, and it was entirely due to her encouragement and determination that we settled down in 1874 at Paul Smith's, then a small summer hunting lodge, to face the severity of an Adirondack winter, 42 miles from a railroad or a physician, and completely cut off for weeks at a time by the deep snows from any communication with the outer world. The spring found me much improved, and it was owing to the good results in my case, as well as in several other patients whom he sent subsequently to winter in the Adirondacks, that Dr. Loomis published a paper in the *Medical*

* Dr. Trudeau's lecture is the first of a series to be given by the Henry Phipps Institute during the coming winter in the crusade against Tuberculosis. These lectures will be six in number, three of which are to be given by Americans, Doctors Trudeau, Osler and Biggs, and three by Europeans. Those who have accepted from Europe are Dr. Pannwitz, of Germany, and Dr. Maragliano, of Italy.

Record in 1876, drawing attention for the first time to the climatic value of this region for pulmonary invalids. The following winter, and indeed the next 29 winters, have been spent in Saranac Lake, which was then situated 42 miles from the nearest raidroad, and consisted of a saw-mill and half a dozen guides' houses, but which has now grown to be a town of four thousand inhabitants, and is known both here and abroad as a health resort.

Long before this time, as early as 1859, Dr. Brehmer, in Silesia, began to work out the principles on which the Sanitarium treatment of tuberculosis is based, and published several articles on this subject, which, however, attracted but little attention for a long time in Europe, and remained unnoticed in this country, but which have been the foundation upon which the Sanitarium treatment of this disease, now so generally recognized all over the world, has been based.



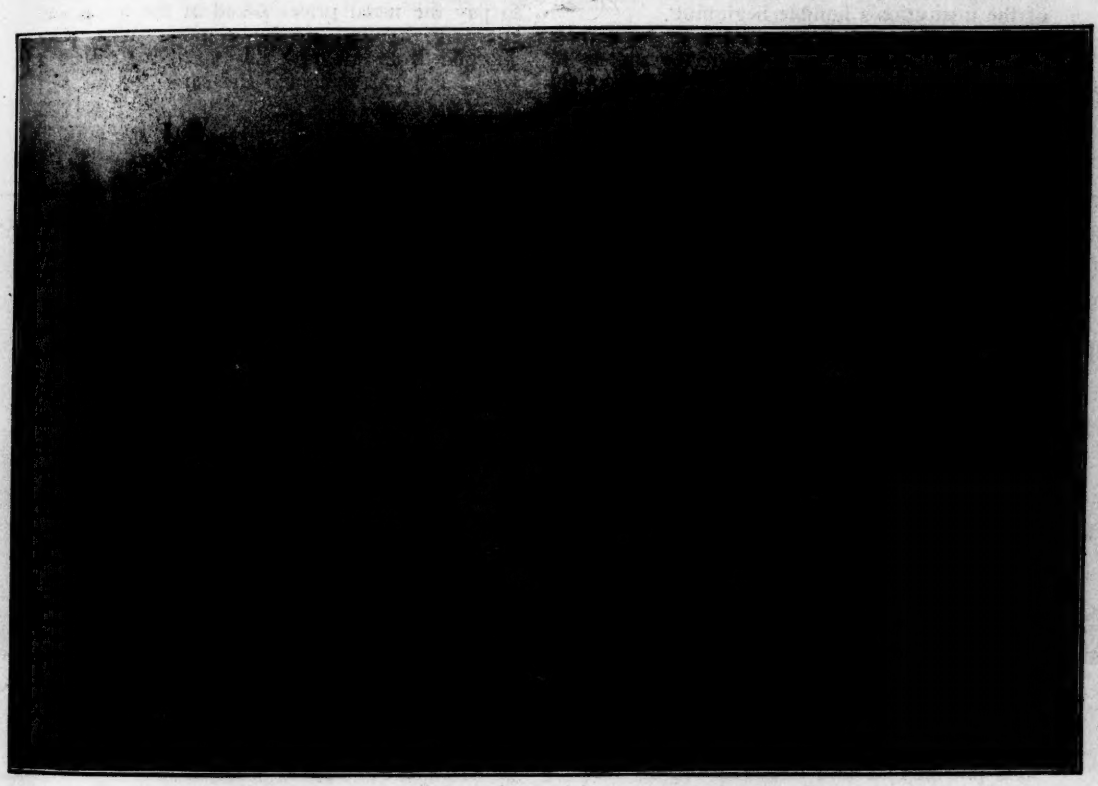
The first cottage, Adirondack Cottage Sanitarium, built in 1884.

Brehmer insisted that climate is not the only and all-important factor in treating the disease, and that the consumptive is never injured by exposure to inclement weather, provided he is accustomed to live constantly out of doors; that it is not so much *where* the consumptive lives as *how* he lives that is of the most importance, and that the pulmonary invalid cannot be left safely to his own devices as to his mode of life in any climate. A life spent entirely out of doors, in any kind of weather, good and abundant food and rest and discipline, are the all-important factors to utilize in bringing about a cure.

He demonstrated by the excellent results he obtained that the careful regulation of the patient's daily life (so far as air, food, rest, and exercise are concerned), is necessary, if the best results are to be looked for, and that if this is done for many months a cure may confidently be expected in a fair proportion of cases. Nowhere can this plan be followed thoroughly except in a Sanitarium built for this purpose, and where the patients live with the physician and are constantly under his eye.

It is interesting to note that this great advance in the treatment of pulmonary tuberculosis took place before Koch's epoch-marking discovery of the tubercle bacillus, and has been in no way influenced and modified by it. I was greatly impressed with Brehmer's views, and anxious to test his method, the more so as the urgent need of supplying at Saranac Lake a place where per-

sons of moderate means could be properly cared for soon became apparent. Thus, little by little, the idea of starting a sanitarium for working men and women, at a cost to them less than the expense of operating it, began to crystalize in my mind. Dr. Alfred Loomis, whom I saw during the summer at Paul Smith's promised the support of his great name, and offered, should I succeed in establishing such an institution, to examine applicants in New York free of charge, a service which he rendered the institution until his death. The first subscription was given me by Mr. and Mrs. Anson Phelps Stokes, whose ever-helpful interest, as well as that of many of my personal friends, has never failed me through all these years. Thanks to the generous response of these friends, I soon had collected a fund of about $5,000, and having bought, with money donated by guides and residents of Saranac Lake Village, a few acres of land on a sheltered hillside where I had often stood while on my hunting trips, and which seemed eminently suitable for the purpose, I began, in 1884, the erection of two small buildings. Since segregation of patients was the aim held in view, the cottage plan was adopted.



The Adirondack Cottage Sanitarium in 1886. View showing all the buildings then on the grounds.

The first cottage consisted of one room, heated by a wood stove and lighted by a kerosene lamp. It accommodated two patients, and cost about $350. It was furnished with a small covered piazza, where, after much persistence and eloquence, I persuaded my first two patients to sit most of the day at rest. This was, as far as I know, the first attempt in America at applying the sanitarium rest and open-air method according to Brehmer's and Dettweiler's teachings, and from this humble beginning the institution gradually and steadily developed until it has become a small village, and the principles of treatment upon which it was founded have gained general acceptance over the entire land. The evolution of the cottage has continued, and the latest cottages are substantial yellow brick and stone structures, costing about $5,000, and accommodating four patients. They are models of convenience and comfort, and are eminently adapted to carrying out the open-air treatment. They are lighted by electricity, heated by hot water and fireplaces, supplied with baths and running water, and each room opens directly on a covered veranda, upon which the patients' beds are easily pushed when ordered temporarily to remain in bed, as well as to sleep out at night.

Each year as obstacles presented themselves they were overcome, and as needs developed they were supplied. As time passed, the struggling institution needed, in turn, more land, an abundant water supply, good drainage, electric lighting, a crematory for the disposal of infectious material,

an open-air recreation pavilion, many more cottages, a library, a chapel where religious services could be held, and an infirmary where the very sick could be properly nursed, and as the cottages increased in number, a new administration building suited to the enlarged needs of the growing community. As these needs arose, from year to year, they were supplied, thanks to the never-failing generosity of the Sanitarium's friends, until to-day, a small village consisting of twenty-two buildings entirely free from any financial encumbrance, has grown up about the little one-room cottage which still stands as a reminder of the institution's humble beginning.

New problems had constantly to be solved. One of these was the nursing of the acutely ill cases. Though patients when admitted were in such condition as to require nothing more than general supervision, sooner or later after admission some of the complications of the disease, later, the Childs Memorial, put at our disposal buildings where patients could be transferred at once when acutely ill, and furnished every convenience and appliance for carrying out the most approved methods for their nursing and treatment until sufficiently recovered to be returned to their cottages.

The requisites for admission to the Sanitarium have always been that the applicant should be in the earlier stages of the disease, or with a fair chance of more or less complete restoration to health, and that his pecuniary circumstances should be such as to make it impossible for him to pay the usual prices asked at the hotels and boarding houses of the region. The price charged from the first has been five dollars a week, and has remained the same for the past twenty years, in spite of the greatly increased cost of operating the institution due to improved methods and the higher cost of living. Each patient costs the institution from eight to nine dollars a week, so that there is a deficiency of about four dollars a week on every patient. There are no private patients and no graded rates, every one being on the same basis. No charge is made for medical attendance, and no extra charges except when the patients are so ill as to be confined to bed and taken to the infirmary, thus requiring constantly the services of a nurse, special diet, etc., when the additional regular infirmary charge of five dollars a week is made.

Adirondack Cottage Sanitarium in 1900. View looking west, showing less than one-half the buildings on the grounds.

such as hemorrhage, pleurisy, and the tuberculous pneumonias and exacerbations so frequent in this disease, would transform a promising patient, entirely able to care for himself, into a bed-ridden invalid, who needed for weeks or months, both day and night, constant nursing and attention.

During the earliest years of the Sanitarium's existence, when it was still 42 miles from a railroad, no nurses were available, and I had no money to procure them. I had no resident physician and nothing to offer as a salary to one, so that during the summer I had to do the medical work of the institution as best I could, being obliged to drive from Paul Smith's, fourteen miles each way, in order to accomplish this. But the problems were finally solved. A physician was found in ill health himself, who was induced to take up his abode at the Sanitarium, giving what service he could in return for his board and lodging; and the gift of the Hall Memorial, and

The Sanitarium has also a small Free Bed Fund, the income of which is applied to defray the expenses of patients whose resources have entirely given out.

It took a long time to overcome the prejudice existing in the professional as well as the lay mind against hospitals for consumptives, a prejudice founded at first on the discouraging death rate among patients in such institutions, and, later on, the fear of infection. The excellent results

obtained at the Sanitarium soon overcame the first objection. Dr. Hance's research, which proved that the dust taken from all the buildings at the institution, except in one instance, failed to infect guinea-pigs, and the published fact that ever since the Sanitarium was opened none of our employees or servants has been known to develop consumption, soon proved that the measures adopted to guard against infection there were efficacious for the protection of all residing at the institution. During the first years of the Sanitarium's existence I had much difficulty in filling its few beds, and, on many occasions, it took all my eloquence and persuasive powers to prevent the few patients from deserting on short notice. The education of the public as to the value of sanitarium treatment little by little became apparent, and of late years there has always been a long waiting list. Not one in twenty who apply can be taken, and many institutions like the Sanitarium would be required to accommodate those who constantly knock at its doors.

Abby Sage Richardson Memorial Cottage, Adirondack Cottage Sanitarium, 1902.

The exact results obtained by the combined climatic and sanitarium treatment are difficult to express in figures, because these results are greatly influenced by the class of cases accepted for treatment, and the classification of these cases is purely arbitrary. Many cases, no doubt, would be classed by one physician as incipient and by another as advanced, according to the views held by each as to the disease, and the personal bent of the individual. In addition, the word *cured* can be used only in the relative sense, as we know that relapse is the rule rather than the exception in this disease.

In my report for 1902 we find that of the really incipient cases, which were only 40 in number, 75 per cent. were discharged as apparently cured, 15 per cent. had their disease arrested, and 10 per cent. improved; while of the advanced cases, 99 in number, 12 per cent. were discharged as apparently cured, 57 per cent. with disease arrested, 22 per cent. improved, 8 per cent. failed, and 1 per cent. died in the institution; of the far advanced cases, none was apparently cured, in 33½ per cent. the disease was arrested, 33⅓ per cent. improved, and 33⅓ per cent. failed while under treatment. Thus, for the 165 cases at whatever stage treated during that year, we find that 30 per cent. were discharged as apparently cured, in 41 per cent. the disease was arrested, 19 per cent. improved, 7 per cent. failed, in 2 per cent. the diagnosis was doubtful, and 1 per cent. died in the institution.

To all who are familiar with the relapsing nature of tuberculosis, an inquiry bearing on the permanence of the results obtained, promised most discouraging revelations. Thanks to a most exhaustive and yet unpublished inquiry by Dr. Lawrason Brown, the Resident Physician, as to the permanency of the results obtained by this method of treatment, I am able to present to you to-night accurate information on this all-important subject. From Dr. Brown's exhaustive

study and careful figures, I will quote only briefly:

Of the 1,500 cases under consideration, which have been discharged from two to seventeen years, 434 could not be traced, leaving 1,066 which have been traced. Of these, 46.7 per cent. are living. Of these, 31 per cent. are known to be well at present, in 6.5 per cent. the disease is still arrested, 4 per cent. have relapsed, 5.2 per cent. are chronic invalids, and 53.3 per cent. are dead. As to the influence of the stage of the disease on the permanency of the results obtained, he found 66 per cent. of the 258 incipient cases discharged are well at present. Of the 563 advanced cases 28.6 per cent. are well, and of the far advanced cases 2.5 per cent. only, remain cured.

Thus we learn that 31 per cent. of all cases discharged from two to seventeen years ago have remained well, that 66 per cent. of the incipient cases discharged during the same time continue well at present, and these figures, discouraging as they may seem to those of you who are not familiar with this fatal malady, emphasize the importance of making an early diagnosis, and teach us exactly to what extent we may count on saving and prolonging life by this method of treatment.

The only specific treatment which has been carried on at the Sanitarium has been Koch's tuberculin treatment. It has been used in a limited number of cases ever since Koch first proposed it, in order that some evidence might be obtained as to its specific influence when given under the most favorable conditions of environment and where patients were constantly under medical supervision. Its use has been found inadmissible in the active types of the disease, and has been confined almost entirely to incipient cases and advanced cases of subacute types only. Of the patients selected for tuberculin treatment 29 per cent. were classed as incipient, 63 per cent. as advanced, and 8 per cent. as far advanced.

All the tuberculins prepared by Koch, as well as Hunter's modification, most of which were made in the Saranac Laboratory, have been tested. At present Koch's emulsion of crushed bacilli is being employed in a few cases. I lay before you now the results of my experience with this method, so far as this can be shown briefly by figures. These patients have been discharged for a sufficient length of time to give an idea of the permanency of whatever favorable results have been obtained.

From 1890 to 1901, 143 cases were treated by this method, and of these 58 per cent. are alive, 33 per cent. are dead, and 9 per cent. are untraced. If we now take the 1,367 cases treated at the Sanitarium without tuberculin during the same period of time we find that 38.9 per cent. are alive, 39.6 are dead, and 21.4 per cent. are untraced. This leaves a considerable percentage of living, 20 per cent. in favor of the tuberculin treated cases, but it would perhaps be a just criticism to say that the value of any deduction based on these figures is impaired by the fact that the tuberculin cases were to a certain extent selected, and for this reason were possibly of a somewhat more favorable type than the general average of the total number treated at the institution during the same period of time which served for comparison. I have therefore procured from Dr. Brown the results in the incipient cases only, treated with and without tuberculin, which were discharged during the same period of time, 1890 to 1901. Of the incipient cases which received no tuberculin 61 per cent. are alive up to date, while of the tuberculin treated incipient cases, 76.7 per cent. are living to-day. Thus it would seem that there is still an appreciable though not very pronounced percentage in favor of the tuberculin treated cases.

But the lives that the Sanitarium has saved and prolonged have not been all that it has accomplished. The hundreds of patients discharged during the past twenty years have been so many missionaries who have scattered over the land, imparting to others the simple but all-important knowledge as to protective measures and hygienic mode of life which they have been so practically taught in the institution. And, besides all this, by affording a scientific demonstration that a fair proportion of tuberculous patients can be cured and restored to lives of usefulness, the Sanitarium has had an influence in bringing about a new attitude of hopefulness towards the disease which has inspired the building of similar institutions.

A cooperative scheme for obtaining employment for patients discharged from the Sanitarium is now on foot, and will soon be tried practically. For this scheme I bespeak your interest, as I feel more patients could be permanently restored if they could procure suitable employment after leaving the Sanitarium.

The responsibility of procuring enough money each year for the support and development of the work has fallen throughout mainly upon me, and the bulk of the burden has been transferred by me to my personal friends, who have never failed to respond to my appeals during these many long years. At first I experienced the greatest difficulty in getting together the comparatively small sums needed, because people then looked upon any attempt to cure tuberculosis with the utmost incredulity, and evidently considered me a well-meaning but impractical enthusiast. The Sanitarium has been throughout essentially an Adirondack charity; that is, it has owed its support almost entirely to visitors who come to the St. Regis and Saranac Lake region, in search of pleasure, recreation, or health. The two fairs held each year at Paul Smith's and the Saranac Inn have supplied a goodly share of the funds necessary to meet the yearly deficit in running expenses. I will not weary you with the financial details of the work. Suffice it to say, that, starting with no other capital but its good cause and its friends, the Sanitarium now represents a plant worth about $350,000 which is paid for; a yearly deficit on running expenses of $7,000 to $20,000 has been met for twenty years entirely by subscriptions, and an Endowment Fund of $200,-

000 has been little by little put aside, the interest of which has been allowed to accumulate each year, as $400,000 will be needed before the deficit in the running expenses can be even approximately supplied by this fund, and the work established on a permanent financial basis.

The Sanitarium has not paid for all the services rendered there. It never could have accomplished what it has, and its very existence in the earlier years would have been impossible but for the self-sacrificing devotion of its officers and even its employees. The late Dr. Alfred Loomis, and the Examining Physicians in New York, Boston, Philadelphia, Baltimore, and Saranac Lake, have always given their services to the institution without charge. The Trustees, and Mr. D. W. Riddle, the Treasurer, have done the same. The Late Frank Ingersoll, the resident officers, Mrs. Julia Miller, Miss Marguerite DeLong, Miss Collins, and the resident physicians and nurses have given through all these years, of their time, their strength, and even the work of their hands, and received inadequate compensation, and often no remuneration at all. Though the Sanitarium has never had money enough to pay for the services required to do its work, the institution has received throughout all these years the kind of devoted service which no money can command, and which has made its work a benediction to those it has sought to relieve.

In 1882, Robert Koch announced to the world his discovery of the tubercle bacillus. His paper on the Etiology of Tuberculosis (probably the most far-reaching in its importance to the welfare of the human race of any original communication), based on experimental research, at once threw a flood of light on the darkest page in the history of medicine, a light which revealed the microscopic fungus which is the direct cause of tuberculosis, gave a new impulse, and opened a new horizon to medical thought.

As Brehmer's and Dettweiler's writings had furnished me with the incentive to establish the Sanitarium, Koch's paper, an English translation of which was sent me by my friend, Mr. C. M. Lea, was my inspiration to scientific research. In bringing to your notice my first efforts to do scientific work, I quote briefly from a paper read before the Laennec Society of the Johns Hopkins Hospital.*

"I had from the first many difficulties to contend with; no scientific training, no apparatus, no access to books, and the remoteness of my surroundings removed me from contact with medical men to whom I might apply for instruction and help.

"In some of the short visits I was enabled to make to New York, Dr. Prudden taught me how to stain the bacillus, and the first principles of bacteriology, and I taught myself the rest as best I could. My laboratory was a very small room in my house, in which, during the intense cold of winter, water generally froze at night in spite of my best efforts, as we had no coal in Saranac Lake in those days, and the wood stove could not be counted upon to burn all night. I had no apparatus but my microscope. With Dr. Koch's paper as a guide, I succeeded, however, in growing the tubercle bacillus in a homemade thermostat, which had no regulating apparatus, and which was heated by a small kerosene lamp only. In order to protect this from the violent changes of temperature, which occurred principally at night, I had enclosed it in a series of wooden boxes, the doors of which could be opened or closed at will, according to the intensity of the cold out of doors. But on very cold nights I was obliged to get up in the night to make a fire in the stove in order to prevent too violent changes of temperature in my little oven.

"With these primitive arrangements, after many failures, I obtained the tubercle bacillus in pure cultures, being, I believe, the second observer in America to do this. With these cultures I repeated all of Koch's inoculation experiments. My guinea-pigs had to be kept in a hole under ground, heated by a kerosene lamp, this being the only spot in Saranac Lake where they could escape freezing at night.

"In 1886, I studied the influence of extremes of environment in the course of inoculation tuberculosis. Many of my inoculated rabbits allowed to run wild on an island recovered or developed only localized disease, while those placed under the most unhygienic conditions I could devise died of tuberculosis in a few months. The results of this research increased my confidence in the influence of a favorable environment on the course of the disease, and confirmed my faith in the value of the sanitarium and open-air method of treating tuberculosis, of which I was then making a practical application in the establishment of the Adirondack Sanitarium.

"During the same week in which Koch's announcement of the discovery of tuberculin and of his hopes as to its specific curative action on tuberculosis, was flashed across the ocean and created in medical circles an excitement which has never been equaled, I published in the *Medical Record* an article describing my attempts at the production of artificial immunity in animals by the injections of sterilized and filtered liquid cultures of the tubercle bacillus (tuberculin), and my failure to obtain any appreciable degree of immunity by this method.

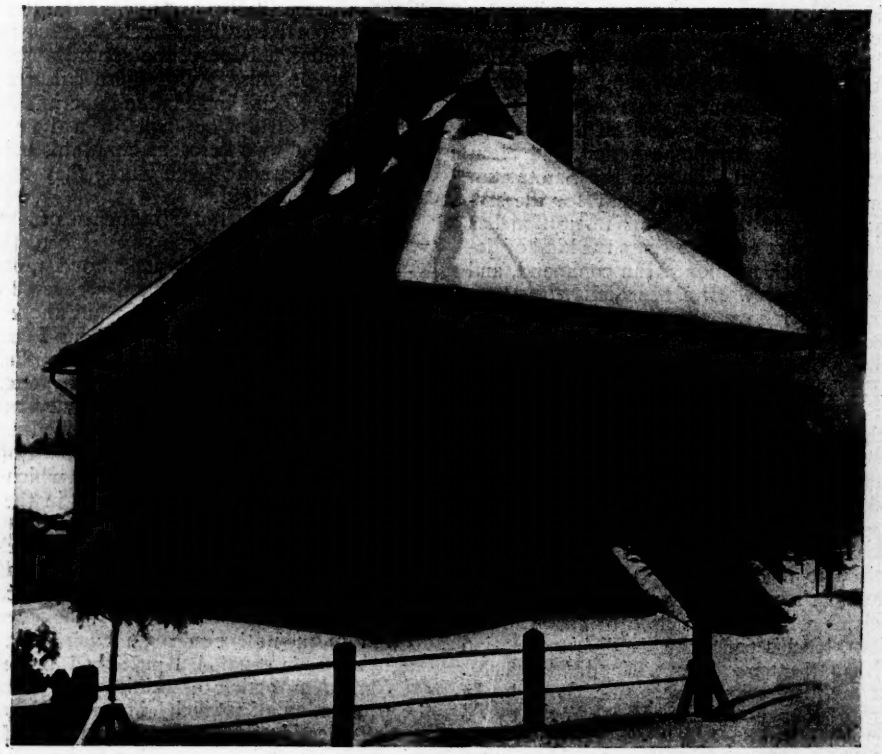
"About this time, while ill in New York, my house burned to the ground, the fire having originated during the night from the explosion of the kerosene lamp of the thermostat in my little laboratory, and everything in the house and laboratory proved a total loss. Two days after the fire I received from Dr. Osler a brief note, which shows that his great reputation should not be limited to his attainments as a physician, but that he may lay claim also to some reputation as a prophet. The entire substance of the note was as follows:

"'DEAR TRUDEAU.—I am sorry to hear of your misfortune, but, take my word for it, there is nothing like a fire to make a man do the Phoenix trick.'

* Bulletin of the Johns Hopkins Hospital, September, 1901.

"Dr. Osler's prophecy very soon began to be realized. A friend and patient of mine, Mr. George C. Cooper, called on me the day after the fire, and after expressing his sympathy, told me that as soon as I was well enough he hoped I would return to Saranac Lake and build a suitable laboratory, one that could not burn down; that he wanted me to build the best I could plan for the purpose, and that he would pay for it.

"The building is of cut stone, slate, glazed brick, and steel, completely fireproof, lighted by electricity, heated by hot water, supplied with its own gas machine for the thermostats, Bunsen burners and sterilizers, and furnished with every



Exterior of Laboratory.

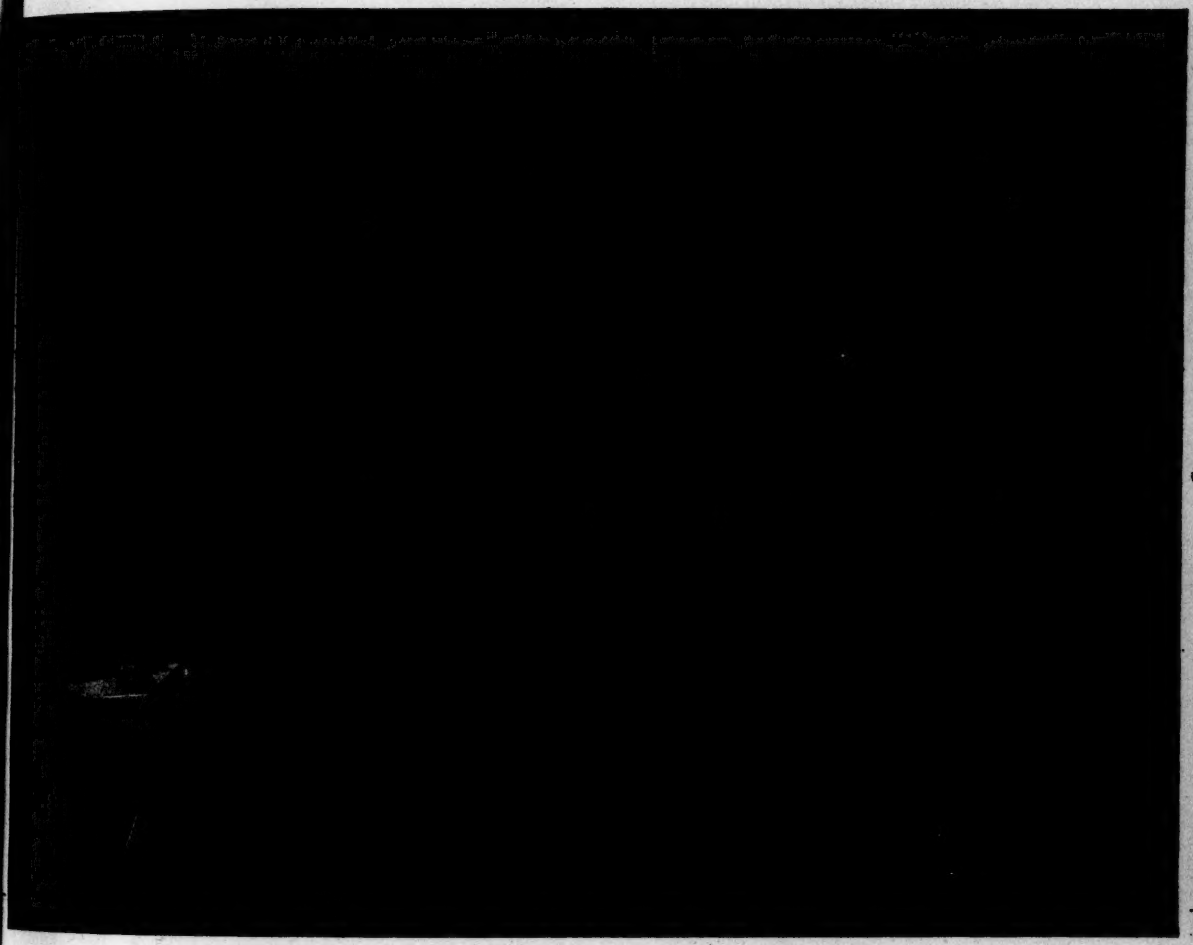
appliance for bacteriological and chemical work. It has a library which was donated by the late Horatio Garrett, of Baltimore, while the continuance of the experimental work so far has been made possible through the generosity of the late Mr. George Cooper, the late Miss Cooper, Mr. John Garrett, Mrs. A. A. Anderson, and others, who from time to time have given sums of money to defray the necessary expenses." The expenses of the work during the past year were entirely defrayed by Mrs. A. A. Anderson.

Time will allow me only to touch on a few points relating to the work of the Laboratory. A good deal of the work of the Laboratory has been devoted to testing experimentally proposed specific methods of treatment and consumption cures, and the fallacies of all methods which aim at the destruction of the tubercle bacillus in the living tissues by germicidal agents was soon demonstrated. The next phase of our work was that which was devoted to attempts at the production of immunity by injections of sterilized cultures and the toxines of the tubercle bacillus, and to the manufacture and testing on animals of all these products, whether proposed by others or of our own manufacture.

We gradually reached the conclusion that a certain degree of toxin immunity could be produced, but that this of itself did not protect animals against inoculation with living virulent bacilli. The tuberculin test and the mechanism of the tuberculin reaction have formed the subject of many of our studies which have tended to demonstrate the reliability of the tuberculin test and its apparent freedom from dangerous after-effects. The chemistry of the tubercle bacillus has also been the subject of many researches by my associates, and the results have been published from time to time.

Most of my own work has been devoted to the study of methods which might tend to produce artificial immunity. I learned by practical ex-

perience that toxine immunity and bacterial immunity in tuberculosis do not go hand in hand. While I could accustom my animals by gradually increased doses at intervals to bear with impunity amounts of tuberculin and other toxic products of the tubercle bacillus which at first would have proved fatal, I found that this toxine immunization did not protect the animal against the invasion of his tissues by living virulent bacilli when subsequently inoculated. It was only when I began to make use of living cultures as a protective inoculation that I met with any encouraging results, and my experience would indicate that the living germ is essential to what success has been attained in the production of artificial immunity against tuberculosis.



Interior of Laboratory.

By preventive inoculations of living bird tubercle bacilli in rabbits, I got undoubted evidence of a marked degree of artificial immunity in experiments which I reported to the Association of American Physicians in May, 1893. I was able then to demonstrate to the Association by means of living animals that in the rabbits having previously received the preventive injections of living bird bacilli, the virulent inoculation at first gave rise to a violent reaction of the tissues, which ended generally in cure, while the tuberculous process similarly induced in the controls was steadily progressive, though at first it was accompanied by little or no local reaction. I have many times since confirmed these results by various experiments.

De Schweinitz, McFadyean, and Pearson and Gilliland, in this country, and Behring, Koch, Maragliano, and Neufeld, abroad, have since from time to time reported success in protecting animals, principally cattle, by preventive inoculations, and in producing a very marked degree of artificial immunity in these animals.

Behring's immunized calves not only failed to

become infected when placed in infected stables where the control animals all quickly developed tuberculosis, but they resisted intravenous inoculations of virulent bacilli to which control animals rapidly succumbed. These facts would make it appear that artificial immunity to tuberculosis is perhaps not as Utopian a dream as it has hitherto always been considered.

The excellent opportunities for original investigation which the Laboratory affords, have always been freely put at the disposal of any medical man desiring to make researches bearing on the etiology, bacteriology, or chemistry of tuberculosis, or to test experimentally proposed specific methods of treatment. The original work accomplished in this way in the Laboratory by my colleagues and myself has been published from time to time during the past twelve or fifteen years in various medical journals, and comprises some thirty-seven papers, sixteen by my colleagues, and twenty-one by myself, but time will not permit me to review this work at present.

The Saranac Laboratory was the first laboratory in this country devoted to original researches in tuberculosis. It has no endowment, has been and still is dependent each year on my own efforts to obtain the funds necessary for the continuance of its work. The same self-sacrificing devotion which has been so helpful a feature of the work of my associates at the Sanitarium for the past twenty years has always been given without stint by my colleagues in the Laboratory, and in the face of many discouragements and difficulties has alone made possible the continuance of what researches have been carried on there.

It was not only, however, at the Sanitarium and the Laboratory that the tuberculosis problem had to be met, but the village of Saranac Lake has been constantly called upon to adapt itself to new conditions, which have transformed it from a guides' settlement to a busy town and much frequented health resort. For twenty years an ever increasing number of invalids has been steadily settling down in Saranac Lake, and the town has now practically developed into a cottage sanitarium on a large scale in order to meet the requirements of an ever-growing invalid population, belonging to all classes of society, from the affluent to the penniless consumptive. For the rich, it now affords beautiful and even luxurious homes, which have been designed and built with a special view to the hygienic care and requirements of the invalid, and for carrying out with the greatest convenience and comfort the open-air method of treatment in the rigorous climate of these mountains. These features are to be found more or less perfectly developed even in the more humble boarding places which abound in the town.

An efficient Board of Health has instituted modern methods of guarding against infection. Rules and regulations to that effect are exposed in public places, and enforced as far as practicable in the town, and disinfection and fumigation of rooms recently occupied by the sick is made compulsory. There is still much to be done in this direction, but much has been accomplished already.

The residents of Saranac Lake have not been unmindful of the poor consumptive whose name is legion. The district nurse, whose expenses are defrayed by the benevolent, is constantly occupied in instructing and nursing those who are too sick to properly care for themselves, and when death comes, as it often does to the lonely consumptive far away from home and without friends, the same charitable spirit which has tried to relieve his lot provides him with a decent burial. How little those who so often speak disparagingly of Saranac Lake because it harbors so many invalids, know of the burden of human misery, not its own, which this small and remote town has ministered to as best it could for so many years. The Sanitarium has also done its share in trying to help those to whom it cannot open its doors.

A Bureau of Information is supported by the institution in the town, and assists rejected condidates to find cheap boarding places, and a free dispensary is maintained at the town office of the Sanitarium where medical advice is given free of charge daily by my associates to those who apply. This branch of its work is growing so rapidly as to be a severe tax already on the time and strength of these physicians.

Before leaving the subject I must call your attention to one more merciful work which has been done at Saranac Lake for the consumptive; namely, the Reception Cottage. This cottage has been established by Miss Mary R. Prescott, and is maintained by her generosity. It is in charge of a devoted trained nurse, and here a few acutely ill or advanced cases, who cannot be taken at the Sanitarium, are often refused at the boarding houses, and who are in need of constant nursing which they cannot afford to procure, are taken and cared for at a very moderate cost.

Saranac Lake has had, perhaps, no more illustrious visitor, or at least, none in whom the public took a deeper interest, than Robert Louis Stevenson, and Mr. Baker's Cottage in the outskirts of the village, where he spent the fall and winter of 1889, has become an object of historical interest. In its little sitting-room Stevenson received the visits of many prominent men who journeyed to Saranac Lake to see him, and it was in this room, on a cold winter night, by the light of the wood fire in the big fireplace, while Stevenson sat on a chair placed on top of the table which had been moved into a corner, that Richard Mansfield delighted the great author with his weird and gruesome impersonation of "Dr. Jekyll" and "Mr. Hyde."

To a temperament like Stevenson's, who shrank from the grim, inexorable facts of life, and lived in an ideal world, painted and peopled by his own vivid imagination, who craved sunshine, blue skies, and tropical seas and verdure, Saranac Lake in winter, with its ice and snow, its gray skies, and its ever-present and ubiquitous prob-

lem of human suffering and sorrow, did not especially appeal, but he acknowledged to me, and in his writings also, that his health was much benefited by his stay there.

He naturally looked with repugnance on the exact and uncompromising methods of scientific research and animal experimentation, and we had many heated arguments on this subject. I finally persuaded him one day to visit the little room in my cottage which was then my only laboratory. He had just written for *Scribner's* a short essay entitled, "The Lantern Bearers," in which some of his beautiful thoughts had as a text a game he and the other boys played, and which consisted simply of walking along the beach on a dark night, hiding under their coats a lantern, which was only flashed at each other as they passed as a signal. I was intent on showing him my animals and culture tubes, and the ravages which are caused by the tubercle bacillus in the organs of animals, and was trying to impress upon him the possibilities which lay in these experiments in advancing our knowledge of a germ which kills one in seven of the human race, when suddenly I noticed that he looked pale, was not listening, and was edging toward the door as fast as possible. As soon as he got outside he turned to me and said, "Trudeau, your lantern may be very bright to you, but to me it smells of oil like the mischief." It was evident that neither of us could fully appreciate the brightness of each other's lantern, though we both tried.

In looking backward over the development of the tuberculosis problem we cannot but be struck with the marked change that has been wrought in the attitude of both the profession and the laity towards this disease. Twenty-five years ago it was one of hopeless indifference, to-day it is one of hopeful expectancy and interest. This has been brought about principally by the work of two men, Brehmer and Koch. Brehmer taught us the value of sanitarium methods, and the great principles which underlie the open-air treatment of tuberculosis. At that time the consumption hospitals and the wards for consumptives in general hospitals were so depressing a spectacle, and their death rate so appalling, that they were frequently given up, and their establishment discouraged by the profession as useless and only likely to shorten the consumptive's life. To-day we know that we can save one-third of all cases received for treatment at a modern sanitarium, and I have shown you evidence that the cures thus wrought are much more than temporary.

Over the doors of the wards and hospitals for consumptives, twenty-five years ago, might well have been written these words: "All hope abandon ye that enter here," while to-day, in the light of the new knowledge, we may justly place at the entrance of the modern sanitarium the more hopeful inscription, "Cure sometimes, relieve often, comfort always."

Before Koch's great discovery of the tubercle bacillus, we were ignorant as to the cause of tuberculosis and the method of its propagation, and helpless to do anything to stay its spread. Henceforth, tuberculosis is no longer a mysterious and intangible entity which slays its myriads of victims by unknown means, but we possess in the tubercle bacillus the specific agent which produces the disease. We can detect its presence in the various secretions of suspected cases, and thus discover the true nature of the malady and guard against the spread of the disease by simple and practical means. We can grow the germs in our laboratories, study the poison and watch the mechanism of its action in the bodies of living animals, and beyond all, lies the hope that further knowledge gained along these lines in the laboratory as to the conditions which favor or retard its growth in the body, and which produce artificially increased resistance in the living organism, may some day lead to a specific method of treatment which will render both men and animals more resistent to its destructive influence.

The tuberculosis problem, as it has been developed at Saranac Lake, is instructive, because it has been carried on from the first practically along the three lines which must be followed in the future struggle with the disease by other communities, namely prevention, treatment, and study. In the town and at the Sanitarium by education of the invalid, by the Health Board's regulations, and the disinfection of infected surroundings, by the intelligent care of the very sick in the Sanitarium Infirmary, and in the boarding houses and at the Reception Cottage, prevention has found its practical application. Treatment has made for itself a brilliant field in the development of the Sanitarium methods and the application of these methods to patients in the town, while the study of tuberculosis in its scientific aspect has interruptedly gone on at the Laboratory, and to this latter department of the work must we look with hope for increased knowledge to aid us in our struggle with the disease.

I have tried, however, imperfectly, to describe to you, how, in the midst of these remote surroundings, the tuberculosis problem has been practically met. While engaged in this work and in meeting our own local problems, my associates and I have witnessed the general spread of the new knowledge and its application by others to the needs of great communities all over the land, the building of many private sanitariums, and the growing feeling of hopefulness which of late years has enlisted the co-operation of the State, the philanthropist, the medical profession, and the laity.

To the labors of Flick in Philadelphia and Biggs in New York City are due the framing, adoption, and development of the more practical measures of prevention which already have lowered appreciably the death rate from tuberculosis in New York City, and promise in the future, as they are further developed and more generally adopted, even more brilliant results. Meanwhile experimental research and laboratory methods have steadily added to our scientific knowledge of the disease, and constantly taught us new facts which have been at once applied practically to its prevention and early detection, while the re-

searches of Koch, Behring, Maragliano, and Neufeld, abroad, and of De Schweinitz, McFadyean, Pearson and Gilliland, and myself in this country, have already brought forward evidence that a marked degree of artificial immunity against tuberculosis can be produced in animals, and the success already obtained in this direction seems sufficient to justify the hope that prevention may some day find a most efficient ally in the discovery of some safe method of immunization applicable to man.

Within the year comes the announcement that a large-hearted man has donated to science and philanthropy a princely sum from the fortune he has acquired in a successful life of business activity, and aided by men of science, has founded the Henry Phipps Institute for the Prevention, Treatment, and Study of Tuberculosis, under whose auspices we are gathered here to-night. No one, I am sure, can wish this great work Godspeed more earnestly than I do, or appreciate more thoroughly the glorious future that opens before it in the advancement of knowledge and the relief of human suffering.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

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THIS condition, to which attention has been especially directed during recent years, has been described in the older records as "scirrhus of the pylorus." Dr. Osler calls attention to a case which he had found recorded in 1788 in the Transactions of the New Haven Medical Association. The case was reported by Dr. Hezekiah Beardsley as one of "Scirrhus of the Pylorus in an Infant." The symptoms noted are constant vomiting, the leanness and the wizened old look of the child. The necropsy showed a dilated and hypertrophied stomach. "The pylorus was invested with a hard compact substance or scirrhosity which so completely obstructed the passage into the duodenum as to admit with the greatest difficulty the finest fluid." (Osler, *Boston Medical and Surgical Journal*, March 12, 1903.)

Dr. John Thomson, of Edinburgh, who has observed 11 cases since 1894, has drawn attention to two early records; the one by Williamson (*London and Edinburgh Monthly Journal of Medical Science*, 1841, p. 23), the second by Dawosky (*Caspar's Wochenschrift*, 1842, No. 7). The title of Williamson's paper was "A Case of Scirrhus of the Stomach, Probably Congenital;" of Dawosky's "A Case of Hypertrophy of the Submucous Cellular Tissue of the Pylorus in an Infant Six Weeks Old." These early records, however, sank out of remembrance and were only recalled after the description of two cases by Hirschsprung of Copenhagen in 1888.

The condition is one to which many names have been given. Hirschsprung entitled his paper "Congenital Stenosis of the Pylorus." Newton Pitt used the term "hypertrophy of the pylorus." J. Thomson in his second publication called the condition "congenital gastric spasm." De Bruyn Kops related one case as an example of "congenital tumor of the pylorus."

During the last five years, and especially during the last two years, the condition has been recognized with rapidly increasing frequency. From being one of the freaks of medicine having little more than pathological interest, it has now become a well-established clinical entity. The disease indeed is probably not uncommon, for it is more than possible, that many children who have been certified as dying from marasmus, vomiting or even intestinal obstruction have, in truth, been its victims.

Symptoms.—The symptoms of the disease are strikingly similar in the majority of the recorded cases. The child at birth is a well-nourished, healthy baby, of normal weight. Soon after birth, sometimes within the first day or two, sometimes not until two, three, or even four weeks have elapsed it is noticed that the child begins to vomit after its food. At the first it is only after the completion of a meal, or toward the end, that the food is returned. The quantity vomited is only small, but it increases day by day. It may then be observed that if only a small quantity of food is given it is retained, a larger quantity is at once rejected. An alteration of the food from breast milk to peptonized milk or to diluted cow's milk is of little or no avail in checking the vomiting. The change may seem to answer for the first meal, or even for all the meals of the first day, but soon the vomiting returns. As day succeeds day, the quantity of food that will excite vomiting gradually lessens, until, finally, even a teaspoonful of milk or water will return. The vomited matters very slightly altered from their condition when swallowed, a little mucus alone is added. Bile is never present in the vomit. When the vomiting is thoroughly established as an enduring symptom its violence is remarkable. As soon as the fluid is taken it is instantly ejected with considerable force. Thomson calls attention to the circumstance that when the stomach tube is periodically passed the fact is revealed that when the fluid is not vomited, it is often retained for long periods in the stomach unabsorbed, thus seeming to indicate not only that the pylorus is impassable, but that there is something interfering with the absorption of fluids by the stomach. The condition of the child changes progressively for the worse. Weight is steadily lost, a few ounces daily, until finally the child may weigh little more than three, or perhaps four pounds. The little face is pinched and shrunken, the child looks wizened and old and the whole body is parched. The temperature is constantly subnormal. Constipation is almost invariable, the bowels do not empty because they are never filled. The mouth and tongue remain clean and moist, as a rule.

If the abdomen be examined at the first, little

or nothing may be found, but when the symptoms have been present for a few days, the outline of the stomach may be clearly seen. Faint waves of contraction, daily increasing in vigor, may pass across the stomach from left to right. At the plyorus a tumor may be felt. The tumor is hard, cylindrical, easily movable, and it lies transversely in the epigastrium. It may at times be difficult or impossible to discover owing to the shelter it receives from the liver. An examination under an anesthetic will then disclose it. The stomach is, as a rule, dilated. In one case, related by Cautley and Dent, it is said that "the stomach was dilated and peristaltic movements could be seen passing onward to the pylorus, there pausing, and then continuing downward down the duodenum. Deep down under the liver at the point of temporary pause in the peristaltic wave could be felt an ill-defined, rounded, movable tumor." The intestines soon become collapsed, and the contrast then between the dilated and thickened stomach projecting forward in the epigastrium and the sunken hollowed abdomen, has excited frequent comment. From this account it may be gathered that there is, in the early stages, very considerable difficulty in the diagnosis. Vomiting in the young infant is so common a symptom that but little interest is aroused by it. Nevertheless the persistence of vomiting for a few days should excite suspicion. If the vomiting be found to occur soon after a meal, and especially after a large meal or a meal quickly taken; if all fluids are alike rejected; if constipation be present, and if, on examination of the abdomen it be found shrunken and hollow, and the stomach be seen to be dilated or hypertrophied with visible waves of peristalsis hastening across it, and if, finally, a transverse epigastric tumor be found, the diagnosis of pyloric stenosis can no longer be in doubt.

Morbid Anatomy.—The appearances presented on post-mortem examination are almost precisely similar in all cases. The stomach is large, and its walls are thickened by a hypertrophy of the muscular fibers. The pyloric region is greatly altered and shows a funnel-shaped circular thickening. When handled it feels like a solid cylinder, hard and incompressible. On cutting through it the walls are seen to be very thick and dense. The mucous membrane lining the pylorus is thrown into longitudinal folds. Cautley and Dent remark that "A single longitudinal reduplication of the mucous membrane, much more marked than any other fold, forms a conspicuous feature in many of the specimens. This prominent fold in its appearance may be compared to the verumontanum of the male urethra. Indeed, these stomachs in appearance and feel curiously resemble the dissected out bladder and prostate, the latter being comparable to the thickened pyloric portion." Several writers have noticed that if the duodenum be opened and the pylorus inspected from its distal side, the appearances presented resemble very closely the cervix uteri seen from below. There is a central opening and around it a thick hard circular band. On making a section of the pylorus, it is seen that the thickening is due to an enormous hypertrophy, or hyperplasia rather, of the circular muscular fibers. This thickening is chiefly limited to the pylorus, but it may extend onward a little way in the duodenum. The longitudinal muscular fibers are not as a rule much affected, though a slight increase may be observed. Finkelstein in one case attributed the whole thickening to an increase in this layer. The submucous layer was in one instance found, by Thomson, to be greatly increased in amount. If the stomach and duodenum be examined before removal from the body it will be found that though fluid may be present in fair quantity in the stomach it is not possible to force any through the pylorus into the duodenum. To the passage of fluid the pylorus is completely blocked, though a fine probe may pass readily enough. The serous and mucous coats are generally unimpaired. The walls of the stomach at the cardiac end are rarely thickened; Thomson says that they are as thin as, or thinner than usual. In some few cases, however, the coats of the whole of the stomach and of the lower part of the esophagus also have been thickened and the muscular fibers grossly hypertrophied.

Etiology.—No very satisfactory explanation of the causation of the condition has yet been given. The muscular hyperplasia it is thought, may be *primary*, a local overgrowth, or *secondary*, due to disturbances elsewhere, which result in spasm. The arguments on either side are not convincing, and for the present at least our judgment in the matter must be suspended. Dr. Cautley who supports the view that the hyperplasia is primary and is due to a simple redundance of growth says "Nature in her extreme anxiety to provide an efficient pyloric sphincter has overtaxed herself, and produced too great a quantity of muscular tissue." One observation which would seem to give support to this theory has been made in some few cases. It is that when the child dies at an early age, between the third and fourth weeks, the amount of hypertrophy found may be far greater than could have been produced since birth. If the pyloric hypertrophy and stenosis existed at birth they could only have been formed as a primary developmental exuberance, or have been caused by spasm, excited when amniotic fluid was swallowed by the fetus. And in favor of this latter possibility there is no tangible evidence. It is important to note that the condition of pyloric hypertrophy has never yet been observed in the fetus. Dr. J. W. Ballantyne, whose experience of fetal pathology is unrivaled, has never once met with this abnormality in all the number of malformed fetuses which he has examined. Henschel has reported three cases occurring in the same family, a remarkable occurrence suggesting the probability of some congenital dystrophy. Dr. John Thomson is the originator and the foremost exponent of the theory that the hypertrophy is secondary. He

has described two cases of the disease under the title "congenital gastric spasm." He considers that there is both a structural and a functional change in these cases. The essential structural change consists in true hypertrophy of the muscular coat of the pylorus, stomach, and sometimes also of the esophagus. The other changes found, the narrowing of the lumen of the pylorus, and the dilatation of the stomach and esophagus are secondary. The main functional abnormality consists in a tendency to spasmodic closure of the thickened pylorus, which prevents the normal periodic opening to allow of the onward passage of food. Dr. Thomson says that there is no symptom characteristic of these cases which may not be regarded with great probability as the result of the excessive, ill-timed, spasmodic contraction of the hypertrophied muscular apparatus of the pylorus, stomach and esophagus. In support of this theory he refers to certain facts which seem to him to throw some light upon the matter. These are:

1. The comparatively isolated character of this malformation which tells against its being really a teratological malformation. In all the recorded cases there were only six which showed other congenital defects or aberrations.

2. The prominence of the spasmodic element in the symptoms after birth, which suggests the probability of a similar spasm in utero. As great muscular hypertrophy is the main anatomical, so spasmodic contraction of the stomach seems to be the main clinical, feature in these cases.

3. The apparent continued growth in size of the pylorus after birth, while the symptoms last, which suggests the probability of a similar growth in fetal life.

4. The gradual disappearance of the symptoms in some cases, while there is reason to believe that the anatomical condition remains unchanged (see the record of Batten's case later); and the immediate improvement after stretching of the pylorus in others, which are points in favor of a functional causation.

The whole question as to the etiology of this disease will require further investigation in the light of a wider experience. It is perhaps not irrelevant to mention that spasm at the pylorus, and in the body of the stomach, is a condition which can be seen from time to time on the operation table. In some cases the muscle as it contracts may so stiffen and harden the pylorus in cramp, that a tumor, palpable through the abdominal wall, is produced.

Treatment.—In the earlier stages of the disease, before the vomiting has become incessant, much good may be done by careful washing of the stomach, and feeding in small quantities through an india-rubber catheter. A doubt may perhaps at first be felt as to the accuracy of the diagnosis in cases which recover under this treatment, but the doubt is not valid. A series of cases are now recorded, three by Finkelstein from the private practice of Professor Heubner, and isolated examples by F. E. Batten, Coates, Still, Senator and others, which prove beyond dispute that the condition is not necessarily fatal. Batten's patient was a male infant eleven weeks old, weighing 7¼ pounds. Up to the age of five weeks the child was quite well. Vomiting then began, increased in force and frequency, and resulted in such an enfeebled wasted condition that the child was thought, after consultation with a surgeon, to be unfitted to bear an operation. A diagnosis of pyloric hypertrophy was made from the following points: (1) a healthy baby at birth, (2) vomiting, (3) constipation, (4) subnormal temperature in the rectum, (5) wasting, (6) marked dilatation and peristalsis of the stomach, (7) a tumor in the position of the pylorus, (8) absence of the usual signs of gastritis.

The little child was fed by a nasal tube and the stomach was cleansed by washing. The treatment was begun in December, 1898. In May, 1899, the patient weighed 16 pounds. In August an attack of acute gastro-enteritis with bronchopneumonia proved fatal. At the post-mortem a hypertrophied pylorus and stomach were found.

A clearer proof of the possibility of the subsidence of symptoms under treatment and of recovery could not be needed. In feeding the little sufferers from this disease, it is better to pass an india-rubber catheter and gently to wash out the stomach with a little sterile salt solution before introducing the food. The best food is probably diluted and sweetened cow's milk. It should be given in small quantities of two ounces or slightly more, and be gradually increased as experience may sanction. The catheter may be passed through the nose, and the sucking action, which is the starting of a peristaltic wave, thereby avoided. If all goes well for eight or ten days, an attempt may be made to feed the child by the mouth, either by teat or with a spoon. If the food is quietly retained the nasal feeding may be gradually abandoned.

Despite the fact that recovery from this condition, under medical treatment on the plan just described, is possible, there will doubtless remain a large proportion of cases that can only be dealt with satisfactorily by surgical measures. Many cases have already been treated by operation, and varying opinions as to the most appropriate means to be adopted have been discussed. The operations which have been performed are Loreta's operation, dilatation of the pylorus, pyloroplasty, gastro-enterostomy, and pylorectomy. The latter is so obviously unsuited to the tender age, and the prostrate condition of the infant, that, as equally effective methods of overcoming the mechanical ostruction exist, it is not worthy of further thought. The operations of pylorodiosis, pyloroplasty and gastro-enterostomy have each been performed on several occasions and their relative merits have not, as yet, been definitely determined.

Loreta's operation, pylorodiosis, consists in opening the stomach by a small incision near the pylorus, and through this incision introducing a

small pair of forceps which is passed through the stenosed pyloric orifice. The blades of the forceps are then gently separated and the tissues around them stretched as widely as is possible without rupturing the serous coat. In one case, related by Harold Stiles, a rupture of the duodenum was produced by the forcible dilatation, and the little patient died from peritonitis. In two other cases Stiles dilated by means of tracheal dilators with a satisfactory result. Burghard prefers this operation on account of its ease, the rapidity with which it can be performed, and the absence of shock. He employs Hegar's dilators. In one case a rupture of the peritoneal coat was produced. The disadvantage of the operation would appear to be the likelihood of a recurrence of symptoms after the paralysis of the pyloric sphincter has passed away. Experience has shown that when the sphincter ani, for example, is stretched to its utmost limit, a fair degree of control is established by the third or fourth day. But it must be admitted that in all the patients who have recovered from the operation the after results seem to have been most satisfactory.

Pyloroplasty has been practised and especially advocated by Clinton Dent. He believes that pyloroplasty is preferable to dilatation for the following reasons: (1) It can be done at least as quickly; (2) it is a more definite proceeding, and allows more range, as the length of incision can be graduated acording to the condition found; (3) the lumen of the tube can be examined, and if thought desirable, the longitudinal fold of mucous membrane can be removed; (4) the exact amount of injury done to the parts is known.

Pyloroplasty in the adult has been found to be on the whole an unsatisfactory operation, partly because a very striking tendency to subsequent narrowing has been observed, and partly because the formation of adhesions of the sutured line to the abdominal wall, omentum, liver, etc., crippling the stomach in its action, has been frequently noticed.

Clinton Dent records two cases of pyloroplasty. The first operation was performed on June 10, 1902. The patient, a boy, was born on April 14. Vomiting began at the age of three weeks and persisted. When seven weeks old a dilated stomach showing visible peristalsis was seen. After the operation a teaspoonful of hot water was given by the mouth every quarter of an hour; then he received a like quantity of whey, the amount being doubled forty-eight hours later. The vomiting continued after the operation, and up to the time of discharge the patient "was occasionally a little sick."

Eight days after the operation the child weighed exactly a pound more than he did the day before operation, but "some of the gain was due to edema." The child was discharged on July 6, weighing an ounce less than on admission. The food passed readily through the pylorus and was taken eagerly and without vomiting. On July 29 he was readmitted for an attack of diarrhea due to unsuitable food. Under treatment he improved gradually until September 3, when his weight was 9 pounds 10 ounces, and he "looked well and happy." On September 9 the little patient died from zymotic enteritis. Dent adds "the case may fairly be claimed as one of recovery from the original mischief." No post-mortem report is given.

The influence of the operation, pyloroplasty, upon the recovery of this patient is perhaps open to question. The vomiting continued after the operation to such an extent that practically all that was given by the mouth was returned. It might well be urged that if the child had been submitted to the dietary discipline that followed the operation, without the pyloroplasty having been performed, an equally satisfactory "recovery from the original mischief" might have been attained.

The second case operated upon by Clinton Dent made a perfect recovery. The following are the notes: The patient, a boy, was born on July 6, 1902, and weighed 10 pounds. He was the third child, the two previous boys being strong and well. From the first the mother noticed that he did not take the breast readily like the previous children, and that he was soon satisfied. On July 27 he weighed 10 pounds 6 ounces, but he then started severe vomiting and lost 12 ounces in four days. At first the vomiting was very bad everything being brought up in from ten minutes to an hour. The stools were variable and not noticed to be markedly small. During the first ten days of life he was breast-fed and then for a short period he was partially bottle-fed on account of pyrexia and a tender breast in the mother. On August 13 he was seen in consultation with Dr. James Morrison who had recognized the presence of some obstruction. The child looked ill, the eyes were sunken, the tongue was clean, and the weight was 9 pounds 6 ounces. The stomach was dilated and peristaltic movements could be seen passing onward to the pylorus, there pausing, and then continuing onward down the duodenum. Deep down under the liver at the point of temporary pause in the peristaltic wave could be felt an ill-defined, rounded, movable tumor. The last stool was greenish and contained a little fecal matter. Temporary measures in the way of diet and drugs were tried for a few days, but as the child steadily lost ground and the vomiting was characteristic, pyloroplasty was performed by Mr. Dent on August 19. A little altered blood was brought up during the next night. Fecal matter was passed on the third day and on August 28 the child was gaining weight. During the next four weeks he gained no less than 8 pounds. His recovery was steady and uneventful. The postoperative treatment and feeding were conducted on the same lines as in the other case.

Gastro-enterostomy was first performed by W. Abel; the patient was a male eight weeks old, upon whom anterior gastro-enterostomy was successfully performed. Kehr relates two successful cases and Monnier one. Fatal cases

are recorded by Meltzer, Stern, Adler and others.

The anastomosis between the stomach and the jejunum may be made upon the anterior or the posterior surface. Posterior gastro-enterostomy in adults is now the operation most frequently selected. Its disadvantages are said to be the greater length of time required for its performance and the greater exposure of viscera. Neither of these objections is sound. A considerable experience of the operation entitles me to say that no more than half an hour need ever be expended in the operation. In desperate cases twenty minutes will be adequate to allow of its careful completion. During the operation there need be absolutely no exposure of the viscera, only those parts of the stomach and jejunum which are to be united lie outside the abdomen. The soiling of the peritoneum is certainly less in gastro-enterostomy than in either pyloroplasty or in Loreta's operation, and there is no blood lost from the cut vessels of the stomach. It is certainly necessary in the early stages of the operation of gastro-enterostomy to handle the stomach and to prepare it for the application of the clamp, if clamps are employed, whereas in pyloroplasty the stomach need hardly be touched and the intestines are not seen.

Which of the three operations, pyloroplasty, pylorodiosis or gastro-enterostomy, will finally prove to be the generally accepted procedure it is impossible to say. The statistical results, up to the end of 1902, were as follows: Pyloroplasty had been performed three times, successfully; in a fourth case, recorded by Sonnenburg, a pyloroplasty was performed, and as the relief was imperfect, a gastro-enterostomy was subsequently performed with good results. This patient was six years old, and the case is therefore hardly in the same category as those occurring in infancy.

Gastro-enterostomy, always anterior, had been performed 9 times; 5 patients recovered, 4 died. In one of these death was due to acute obstruction caused by a Murphy button which had been used to effect the anastomosis.

Loreta's operation had been performed 9 times with 7 recoveries.

TIMELY OPERATION IN PRIMARY APPENDICITIS,

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THE question I wish to emphasize is that every primary case of appendicitis should be operated upon timely—that is, before the disease has extended beyond the appendix, or complications have arisen.

Of the appendix, I will speak in a general way. It is covered with peritoneum, except upon its mesenteric part, and may be from a half inch to 12 inches long, but is usually 3 or 4 inches long. It may lie downward, inward, outward, or upward; but there may be cases where the appendix has no peritoneal covering, being turned under the cecum, lying between the bowel and the posterior wall, as in a case I operated upon a few days ago.

The appendix enters the cecum at the bottom of the posterior longitudinal muscular band of the ascending colon, and just below the ileocecal union. It is usually composed of four coats—serous, muscular, submucous, and mucous—the two inner coats containing numerous lymphoid cells, in delicate retiform connective tissue, sometimes developed as in the Peyer's patches in the ileum; also solitary glands, and glands of Lieberkühn. It will thus be seen the similarity of tissues in the appendix and the ileum, where we have the agminated glands, composed of lymphoid tissue, situated in the bowel wall opposite the mesenteric attachment, and are larger and more abundant near the lower part of the ileum. The lymphoid tissue is better developed in young persons, in both the ileum and the appendix, hence typhoid fever and appendicitis are relatively less frequent in old age. It is a clinical fact that appendicitis may result from typhoid infection of the Peyer's glands, and that we may have in each disease, ulceration, necrosis, or gangrene, with perforation. There is such an intimate lymphatic supply, that it is possible the infection in typhoid fever may be directly conveyed to the appendix through these channels, or it may be conveyed through the ileocecal opening into the cecum and then enter the appendix. The appendix becomes relatively more frequently ulcerated and gangrenous and perforated than does the ileum in typhoid fever, because of relatively less abundant blood and nerve supply, and an imperfect capacity for drainage, which may be increased by the hypertrophy of the lymphoid tissue. Each of the pathogenic germs causing appendicitis may be modified in its virulence by the environments, the same germ at one time causing a mild form of the disease, and again a fatal form. The germs found in appendicitis are the streptococcus, the colon bacillus, the staphylococcus and the lanceolatus, but these germs may be in the appendix and cause no pathologic condition, and only do so when some contributing cause impairs the normal resistance of the tissues, the germs then becoming pathogenic and destructive.

The diameter of the cavity of the appendix is usually smaller near the cecal attachment, which may be partially caused by the valve, formed by folds of the mucous and lymphoid tissues. So long as the drainage of the appendix is not obstructed, there will probably be no inflammation, or only a mild catarrhal variety; but when drainage is partially or wholly obstructed, destructive processes may follow, demanding immediate attention, the germ often becoming so virulent as to require the removal of the appendix before the end of thirty-six hours,

* Read before the American Gynecological Society, at the meeting in Washington, D. C., May 14, 1903.

to prevent ulceration, necrosis and gangrene, which may cause death with or without an operation. It is impossible to tell the degree of stricture of the appendix, or when conditions exist to make the operation dangerous or necessarily fatal, but we know that in these cases a timely operation may save the patient's life. It is true that we cannot always positively diagnosticate appendicitis, but if the appendix is not diseased, an experienced surgeon will, with few exceptions, find a condition that requires surgical treatment, such as hernia caused by fibrous bands and adhesions, in omental rupture, in the opening of an adherent Meckel's diverticulum; or volvulus, intussusception, malignant or tuberculous disease of the ileocecal junction, obstructed ureter, suppuration of the kidney or its pelvis, enlarged gall-bladder, impacted gall-stones in the ileocecal region, pyosalpinx, pelvic abscess, etc., and if perchance absolute error in diagnosis of any diseased condition does occur, the patient will recover, and if the appendix is removed, will be rid of a structure that may become an offending remnant. I therefore believe that every case of primary appendicitis should be operated upon if seen timely, and there are no positive contra-indications showing great danger in performing any capital operation on the patient, presupposing that the operator is an experienced abdominal surgeon. If this principle is observed, there should be practically no mortality, as is shown by the surgeons here and abroad who have done the most of this work—the mortality being in neglected cases, where the danger to vital parts was so great that death was inevitable by any method of treatment. It is true that many cases will apparently recover, but the disease will often recur because the appendix has become strictured or diaphragmed, so as to interfere with or obstruct drainage. This has been positively proven by examining appendices that have been dilated with and preserved in alcohol.

The condition is in a degree similar to a strictured urethra, and we know the results in such cases when neglected or improperly treated. It may be contended that it is best to operate between the attacks, the mortality then being lower. I do not believe this to be true where we operate timely during the first attack, and I would ask how are we to know that any patient will recover from an attack so as to be operated upon in the interval? The profession will be forced by results to recognize that appendicitis is not cured by medical treatment, and that surgery is the only rational treatment. In the acute stage, purgation is contra-indicated, but the contents of the stomach should be removed by the pump and no food or liquid given. If possible, avoid opiates. The lower bowel may be unloaded by an enema. There have been many disastrous results caused by purgation and food, and there is no disease in which excessive peristalsis is more harmful; but an opiate so modifies the symptoms as to prevent our getting a correct idea of the actual condition. Although it may occasionally be indicated, it is not directly curative, and should, if possible, be avoided. While most of my cases of appendicitis operated on with gangrene, necrosis, perforation, or suppuration recover, the recovery is protracted and adhesions are left, but my cases, operated upon timely, before these conditions appear, usually recover without complications. While the prognosis is less encouraging in operations between the attacks, it is better to operate at this time than during a recurrent attack, for we cannot anticipate conditions that may have developed to complicate the operation. As nearly all cases of appendicitis are first seen by the general practitioner, many lives may be saved by prompt consultation with one who is practically familiar with the correct technic for the removal of the appendix or any complication that may have arisen. It can no longer be claimed that the amelioration of symptoms in acute appendicitis usually contra-indicates surgical interference, for dangerous pathologic changes may progress rapidly under apparently favorable conditions, which cannot be positively known until the abdomen is opened. The pulse and temperature may often give no evidence of impending danger until complications have developed beyond the control of the physician and surgeon. The physician may say that a patient had appendicitis and entirely recovered without operation. How do we know that he had appendicitis, or that he got well? It was shown by Dr. Abbé in the pathological exhibit at Saratoga, in June, 1902, that every appendix in which the inflammation involves its deeper structure will have one or more strictures. The case may have been one of so-called catarrhal appendicitis. Whenever it involves the mucosa deeply, you will finally have a stricture. We do not know how great the constriction is or when it may become greater, with obstruction to drainage and recurrence of the disease. We know of patients having appendicitis ten to twenty years after the first diagnosis. I do not speak of those cases incorrectly diagnosed appendicitis. We must first make the diagnosis, and when we are agreed that it is appendicitis, the case should be operated upon before further involvement, because we then make a permanent cure, and there need be no complications, if the surgeon understands the correct technic in these operations. In the near future, it will be the universal opinion that every case diagnosed before the appendix is too greatly injured should be promptly operated on. Five years ago there were more surgeons opposed to the primary operation than there are physicians opposed to it to-day. There is no surgeon to-day who opposes it, and many physicians who were earnest in their opposition five years ago, are now positively in favor of the operation. Osler, Tyson, Anders, and nearly all authorities in medicine and clinical medicine, class the disease as surgical. How are we to treat appendicitis, if not surgically? I do not know how. Empty the stomach and give no liquids or food; no purgation, but an enema. Hot or cold applications may do no harm, and do no good. We may be compelled in some cases to give opiates if we do not operate. But

if you are an experienced physician or surgeon, and consider these cases carefully, you will seldom make a mistake in saying that appendicitis should be operated upon timely. My serious results have arisen from delay, or in serious cases similating appendicitis. A few days ago I was telephoned by a doctor at 9 o'clock A.M., saying, "I have another case of appendicitis." It began suddenly, no previous attack, in a boy ten years old. He was ordered sent to the hospital. The father was not at home, but he called me by telephone at 7 o'clock P.M., and said he would send the boy next morning. He reached the hospital about 9 o'clock the next day in a state of collapse. He had no radial pulse, and there was but little hope of positive relief, but I gave him the one chance. The abdomen was full of bloody serum, and 10 feet of the ileum gangrenous. The appendix was normal. Meckel's diverticulum as large as my finger, and about as long, was attached at the distal end to the mesentery near the ileocecal junction, and through the opening thus formed the ileum and mesentery had passed and become strangulated. I did not believe this was appendicitis, and so expressed myself before seeing the patient, the doctor having given the symptoms by telephone.

I was recently called by another doctor in a case, and carefully examined the man. He had a pulse of 75, temperature normal; was vomiting liquid as clear as water. I said that he would be vomiting fecal matter in less than twenty-four hours. This was at 4 o'clock P.M., and at 1:30 A.M. he was vomiting fecal matter. He was sent to the hospital and an extensive intussusception was found in the ileocecal junction. The man recovered. Twenty-four hours later he might have been dead. So I say that even if we cannot always diagnose appendicitis, we can find some condition that demands the attention of the surgeon.

But you may ask the pertinent question, "What shall we do when the case has gone beyond the primary and timely stage?" This is a serious question, about which there is no consensus of opinion. I believe in many of these cases we get better results by waiting until the abscess is walled off so we can open it and drain. I saw a case operated on the other day by one of our young surgeons. The appendix had sloughed off, and was gangrenous in its entirety. Adhesions were not sufficiently formed to prevent leakage into the peritoneum. The patient died within three days. Had she not been operated on until later, she might have recovered. What caused the gangrene in this patient? She had appendicitis for four or five days before I saw her, and the doctor had given her large quantities of purgatives, including a dose of croton oil. So evidently intense peristalsis encouraged the sloughing of the appendix. If a pus cavity is well protected by a surrounding wall, we may operate; if not, delay may show better judgment, and afterward when the acute symptoms have subsided, operate and do not let our patient go to another attack.

In many cases of inflammatory or purulent condition in the pelvis, I have found inflammation of the appendix, but usually no necrosis, gangrene, perforation, or pus formation, the appendix being adherent, often constricted and tortuous, caused by adhesive bands, with so-called catarrhal involvement.

In most of these cases the appendix was long, and the end was lying in the pelvic cavity, and while the separation of the adhesions may have cured the patient, I have felt it wise to remove the appendix, as its removal adds but little to the danger of the operation, and does away with condition that may finally cause serious trouble. From my experience and from the literature on the subject, I believe that in cases of pelvic abscess with suppurative appendicitis, the latter disease usually causes the former, for there are cases where in suppurative appendicitis, the pus goes into the pelvis, and may be removed by vaginal incision. I have recently operated upon 8 cases, for single or double tubo-ovarian abscess, or single or double pyosalpinx with appendicial involvement, the disease of the appendix having been communicated from the pelvic structures, but caused neither necrosis, perforation, gangrene nor pus.

Then while appendicitis is not often a direct cause of pyosalpinx or ovarian abscess, these conditions may result from contiguous relation, with pus formation in the pelvic peritoneum, following appendical abscess. But an appendical abscess may involve the pelvis and cause no abscess of ovary or tube, as the following case illustrates:

I was called in consultation to see Mrs. B., with an acute attack of appendicitis. She had all the symptoms of appendicitis, was in collapse, with a feeble pulse of 140, temperature 104° F. She had the cold, clammy perspiration we have in collapse from sepsis. Feeling that an operation at this time was contra-indicated, we gave her a hypodermic of morphine one-fourth grain, and strychnine, one-twentieth grain. She was much improved in a few hours, was removed to the hospital, and within twenty-four hours her pulse and temperature were nearly normal, and remained so for four days, during which time she suffered but little pain. On the fifth day she felt intense pain and pressure in the pelvis, interfering greatly with the rectum and bladder. Her temperature was now 104° F., and pulse 120, but of good volume. The pelvis was filled with pus, and through an incision in the posterior vaginal fornix there was discharged a quart of pus of intense fecal odor, containing a concretion three-eighths of an inch in diameter. Her pulse and temperature were normal next day, and she made a prompt recovery, and from careful examinations I am certain there had been no abscess in the tubes or ovaries, and she has had no symptoms of pelvic trouble since. I consider it our duty in every operation for disease of the right pelvis, to carefully examine the appendix, and it is also best to do so in abdominal sections for any pathological condition.

ON THE HYPODERMATIC USE OF ADRENALIN CHLORIDE IN THE TREATMENT OF ASTHMATIC ATTACKS.*

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(A Preliminary Communication.)

THERE are among the patients at Montefiore Home many cases of asthma that differ in their mode of onset, and in the variety and frequency of their seizures. These patients have afforded the material for the observations in this paper.

Before the use of adrenalin chloride hypodermatically the attacks were treated by the following methods. Fumes were inhaled from the various powders the bases of which are stramonium, belladonna or hyoscyamus with potassium nitrate. Opium and morphine were given by mouth, rectum and hypodermatically. In some cases relief was afforded in one-half to one hour, but only when doses large enough to produce stupor were administered. Frequently when the narcotic effect wore off the attack would return. Chloral and the bromides were given, but their action was not prompt and not always satisfactory. Nitroglycerin and hyoscine were administered. Camphor and ether were given hypodermatically. A combination consisting of antipyrin, antifebrin and caffeine was used. Chloroform anesthesia was resorted to in some obstinate cases in order to produce general relaxation; often the attacks would return with the wearing off of the anesthetic. Inhalations of oxygen were tried. Emetics were exhibited, cupping and mustard footbaths were resorted to. Silver nitrate injections into the vagus region were used. Adrenalin chloride was given by mouth but it had no effect on the attack. Adrenalin chloride was sprayed into the pharynx without satisfactory results. In fact, almost all the text-book methods were exhausted without much benefit to the patient.

As may be seen, the methods enumerated did not readily break up the attacks of asthma. They ought to be cut short as quickly as possible when one considers the sequelæ of a succession of asthmatic seizures. Although in some cases the patient's distress alone may cause anxiety to the physician it is what follows repeated prolonged attacks which gives him concern. Asthma itself has no known pathology; the repeated recurrences of asthmatic attacks, however, lead to the well-known changes characteristic of emphysema. Though there is no accepted pathology of asthma, during the asthmatic attack the pneumatic conditions in the lungs are presumably the following: There is an obstruction to the escape of air from the air vesicles and the air vesicles are overdistended. As a result of the obstruction the walls of the air vesicles are forced to expend their elastisity upon an air-cushion, so that, finally, they are overstretched, thus losing part of their elasticity. With the frequent recurrence of the above conditions the walls of a great many of the air vesicles lose their power to contract and remain distended. The passive hyperemia depending upon the vasoparesis results in an impairment of the vitality of the lung tissue and the walls of the vesicles atrophy. The many distended vesicles with their non-elastic walls enlarge the lungs to such an extent that they cause an increased intrathoracic pressure, producing an enlargement of the thorax and the characteristic barrel-shaped chest. In view of these consequences of the asthmatic seizure, and the obstructive explanation of the attack, the therapeutic attempt is properly directed toward relieving the obstruction and allowing the free egress and ingress of air. In order to remove the obstruction it is necessary to consider its nature first. It was such a consideration which led logically to the hypodermatic use of adrenalin chloride in asthma.

There are two chief theories accounting for the obstruction in an asthmatic attack. First, that the bronchial obstruction is brought about by a spasm of the circular muscles of the bronchi; second, that the obstruction is caused by a turgidity of the bronchial mucosa. The former theory is upheld by the majority of the medical profession, and is the one recently supported by the experimental studies of Brodie and Dixon,* in England. The data for the latter, or angioneurotic theory, have been presented by Goodhart in the chapter on Hay-fever and Asthma in Allbutt's "Practice of Medicine." The recent experimental studies on hay-fever by Dunbar† also seem to be in conformity with this second theory, as well as the article by Norman Bridge on Asthma, Bronchitis and Whooping-cough, in Hare's "System of Practical Therapeutics." The repeated failures of antispasmodics, to cut short the asthmatic attack, suggested the employment of adrenalin chloride hypodermatically, as a general vasoconstrictor, in conformity with the second hypothesis. The satisfactory result in one instance led to the repetition of the procedure and to the making of the following clinical observations:

Case I.—Female, aged seventeen years; Russian, admitted, 1900. Family history.—Mother has heart disease and hemoptyses. Father T. B. Personal history.—Until present illness personal history is negative. In 1898 patient caught cold while bathing. Two weeks later she had a typical asthmatic seizure lasting two days and three nights. One month later she had another attack lasting three days. Another spell, which was observed at the New York Hospital, lasted three days. Since then attacks of asthma recurred at intervals of from one day to two months. These attacks are usually preceded by malaise, pallor of the face and a few wheezing râles upon deep inspiration. Then the dyspnea becomes more and more marked, the mucous membranes become congested, the face and extremities cyanotic and cold, the wheezing and noisy breathing is heard at some distance from the bed, and the patient's

* From the Montefiore Home for Chronic Invalids, New York City, presented for publication, Sept. 22, 1903.

* The American Journal of the Medical Sciences, Sept. 19, 1903, "The Pathology of Asthma."
† Deutsche medicinische Wochenschrift, No. 9, Feb. 26, 1903.

distress is evident. These attacks return at irregular intervals and are apparently influenced by various conditions, such as atmospheric changes, dust, smoke, physical or mental exertion, menstruation, constipation, and, at times, without any evident cause. No constant pathological change in any of the organs has been found which would account for the origin of the attack. Some of these seizures were so severe as to leave the patient almost exhausted. Respiration would go up to 50 per minute and the pulse to 160.

These attacks were treated in various ways. Three years ago suprarenal extract in 5-grain doses was given by mouth and soon abandoned. The bromides, morphine, and digitalis, and at times atropine were used. On a few occasions the attacks were so severe that chloroform anesthesia was resorted to in order to relax the spasm. Adrenalin sprays into the pharynx were employed but they did not relieve the attack. Finally, after the patient's weight was reduced twenty pounds in two months, by a succession of attacks, the hypodermatic use of adrenalin chloride was suggested in agreement with the angioneurotic theory.

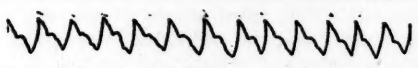
After the patient had been suffering for twenty-four hours and the attack was still in full force, the first dose of 7½ minims of an old solution of adrenalin chloride was administered. Half an hour later the patient was enjoying a quiet sleep. The attacks have taken place as frequently as before, but owing to the promptness with which they are cut short the patient has regained 8 pounds in the first month and 12 pounds in the second. During an attack the blood condition is as follows: Hemoglobin, 80 per cent.; red blood corpuscles, 4,800,000; white blood corpuscles, 8,600; differential count of white blood corpuscles gave polynuclear neutrophiles, 38 per cent.; transitionals, 8 per cent.; small lymphocytes, 6 per cent.; large lymphocytes, 8 per cent.; mononuclear leucocytes, 10 per cent.; eosinophiles, 26 per cent.; basophiles, 4 per cent.

While treating the patient by this method, the following observations were made: On one occasion after being awakened suddenly during the night by the advent of an attack and having suffered for several hours intensely, the patient was again seen at 7.10 A.M. after several antispasmodics had been given and 10 minims of adrenalin chloride had been administered by mouth without effect. At this time the patient was found sitting up in bed with her face cyanotic and her extremities cold. The breathing was loud and typically asthmatic, with the chest muscles overacting in a futile effort to aerate the lungs. At 7.11 respiration was 42 per minute, pulse 126. At 7.15 four minims of adrenalin chloride were injected into the arm. At 7.18, or three minutes after the injection, the patient's dyspnea was suddenly and completely relieved and the chest ceased to labor. At this time her face was pale and she could converse with comfort. Her respiration was 48 and her pulse 132; at 7.26, respiration 36, pulse 120; at 7.33, respiration 32, pulse 96 and the patient was quietly dozing.

An attack was recently observed (Sept. 6, 1903). Patient having visited her relatives during bad weather, came back suffering from malaise. Next morning, after several hours of increasing dyspnea, the patient was suffering considerable discomfort, her respiration being 40, pulse 128, of poor tension. At 12.38 P.M., one minute after the above observation, four minims of adrenalin chloride were injected into the arm. At 12.41 P.M. her respiration was 37, pulse 144, of good tension. At 12.46 all the subjective symptoms as well as the râles were gone. Breathing was comfortable—38 per minute—pulse 114. At 12.50 P.M. respiration 35, pulse 110. This patient's pulse normally ranges between 90 and 100.

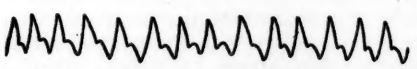
On some occasions we had the opportunity to study the effects of the drug upon the pulse, as the following sphygmographic tracings indicate. In order to eliminate the psychical element the following experiments were performed:

Fig. 1.



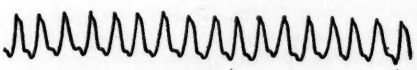
Usual tracing between attacks. Dudgeon's Sphygmograph.

Fig. 2.



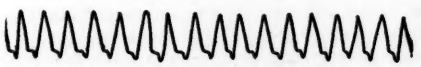
During an attack before adrenalin chloride was injected.

Fig. 3.



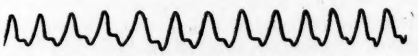
During an attack one minute after adrenalin chloride was injected.

Fig. 4.



Four minutes after adrenalin chloride was injected.

Fig. 5.



Seven minutes after adrenalin chloride was injected.

Tracings 2, 3, 4 and 5 were taken without changing the adjustment of the instrument, so that their distance from the horizontal lines approximately indicate the relative blood-pressure.

During an attack the respiration at 10.30 A.M. was 40, pulse 125. Breathing labored and wheez-

ing. Ten minims of water withdrawn from an adrenalin bottle were at once injected.

At 10.38 her respiration was 40, pulse 128; breathing unchanged. At 10.40 A.M. 3 minims of adrenalin chloride were injected into the arm. At 10.43 her respiration was 27, pulse 125, breathing practically normal. No râles. Recently (Sept. 9, 1903) the same experiment was repeated with the same results.

Case II.—Male, aged sixty-three years; tailor; Hungarian; admitted 1900. The salient features in this history are the following: He is an excessive smoker and moderately alcoholic. For thirteen years he has had severe attacks of bronchial asthma, which usually lasted for several days and nights. He suffers from emphysema and his customary dyspnea varies in intensity from time to time. The asthmatic seizures are typical, though sometimes they are associated with hiccough; sometimes they alternate with attacks of hiccoughing.

During a severe attack, the patient was seen at 12.19 A.M., his respirations were 22, pulse 108. His breathing was wheezing and could be heard all over the ward. Three minims of a fresh adrenalin chloride solution were immediately injected into the arm. At 12.22 there was no improvement, so that another two minims were administered. At 12.25 his respiration was 30 and his pulse 84, with increased tension. The breathing became quiet and a few râles could be heard, only when the ear was closely applied to chest. The patient was comfortable. Ten minutes later the patient shivered, as if in a chill, for about two minutes—and felt cold for a few minutes longer. One hour later the patient was resting quietly, the hiccough being relieved as well as the other symptoms. Following this attack the blood condition was: Hemoglobin, 70 per cent.; red blood corpuscles, 4,200,000; white blood corpuscles, 8,000. Differential count showed polynuclear nuetrophiles, 54 per cent.; small lymphocytes, 3 per cent.; large lymphocytes, 17 per cent.; mononuclear leucocytes, 3 per cent.; transitionals, 6 per cent.; basophiles, 2 per cent.; eosinophiles, 15 per cent.

Case III.—Female, aged thirty-seven years; housewife; Russian. She had grip in 1889, coughing very much and was very weak. Since then she has had moderately severe attacks of asthmatic dyspnea, which lasted for a week or ten days. After an injection of 5 minims of adrenalin chloride the condition is promptly relieved in about three minutes, and she feels better for several days. Following one such injection when the blood pressure had been increased by excitement and a fresher solution had been used, she experienced pain in the heart and a sensation of coldness. She shivered, her extremities were cold, cyanosed and tremulous and the visible mucous membranes were pale. These symptoms were considerably relieved by one-half ounce of whisky.

Case IV.—Female, aged sixteen years; seamstress. In May, 1902, she caught cold, vomited and had dyspnea. Inhaling some "smoke" relieved her a little. Worked for one week and got another attack, compelling her to stay in bed. She came to this institution after a stay for some weeks in Gouverneur and Mt. Sinai hospitals. The attacks usually come on at night, causing considerable distress to patient. August 23, 1903, patient had an attack at night, 7½ minims of adrenalin chloride were injected and the seizure was cut short in two minutes. The patient said that later in the night she had a slight recurrence.

Case V.—Male, aged sixty years; peddler; moderate drinker; heavy smoker. Fourteen years ago had a cough for five months. Now he has all the physical signs of an emphysema and frequently gets typical asthmatic attacks at night. During one of these attacks, at 10.30 P.M. respiration was 35, pulse 102. Wheezing and sonorous râles all over the chest. Five minutes after the injection of 6 minims of adrenalin chloride, the respiration dropped to 30, and the pulse to 100; all râles disappeared and the patient slept quietly.

A number of other cases were treated with adrenalin chloride hypodermatically with precisely the same results.

It has been noticed that during an attack of asthma the pulse tension is diminished. This fact furnishes an additional indication for the hypodermatic use of adrenalin chloride, which has an accepted vasoconstrictor effect. Excessive vasoconstriction, however, is followed by a short rigor or chill without pyrexia, a sensation of pain and palpitation of the heart, a feeling of light headedness or headache as well as coldness and general shivering with a feeling of tingling and numbness of the extremities. A general blanching of the skin and visible mucous membranes is observed, together with tremors of the extremities.* These sensations never lasted longer than ten minutes and have never been noticed to any marked degree when the drug has been administered in the proper dose. This effect has been noticed in persons with stiff arteries from a smaller dose, and more often than in other patients. It is conceivable that patients with brittle arteries might be injured by an overdose; in such cases the drug must be given cautiously and the dose must be divided. There were no harmful effects observed in any of the patients, though some of them had marked arteriosclerosis.

In conformity with the angioparetic theory of the asthmatic attack, a dose sufficient to cause general vasoconstriction is necessary to cut short the seizure. Doses too small to bring about this result did not relieve the patient. Doses which are large enough to cause too marked constriction of the capillaries, such as will be followed by muscular fatigue and consequent loss of vascular tone, are sure, though the attack may be stopped temporarily, to be followed by a return of the symptoms, when the vasodilation manifests the muscular fatigue. No matter how large the dose, time sufficient for it to traverse the lesser circulation must elapse before the drug can act.

* In four patients who presented these symptoms, urinalysis showed no glycosuria.

With fresh preparations of the drug 3 to 6 minims of the 1 in 1,000 solution, hypodermatically, cut short the asthmatic attack, usually without disagreeable sequelæ. It is worth while mentioning the fact that solutions of adrenalin chloride deteriorate from exposure to light and air, and that the dose must be increased accordingly.

The immediate vasoconstriction necessary to cut short an attack can only be obtained by the hypodermatic method of administration. Much larger doses by mouth do not cause the above effect; sprays into the throat are likewise inefficient. Adrenalin chloride used externally has only a local constricting on the capillaries, for which reason it is poorly absorbed when applied to the mucous membranes, therefore, in order to produce a constricting effect on the capillaries in the lung it must be introduced into the circulation. These facts are in accordance with Simonowitch's observations on the "Action of Adrenalin" in *Roussky Vratch,* June 14, 1903, who mentions among other things, the slow absorption of the drug by mucous membranes.

The hypodermatic administration of adrenalin chloride is not painful. In some cases there is a blanching of the tissues about the puncture with a reddened areola. This can be obviated by a deeper injection.

From these observations the following preliminary conclusions suggest themselves: (1) Given hypodermatically, adrenalin chloride is capable of cutting short attacks of asthma in from two to twenty minutes. (2) In conformity with the angioparetic theory of an attack, the dose must be such as will cause prompt general vasoconstriction, three to six minims of the 1 in 1,000 solution, in a single or divided dose, being used in adults.

In closing, the authors wish to express their sincere thanks to the House Physician, Dr. Siegfried Wachsmann, for his generosity, encouragement and advice during the progress of their work.

MEDICAL PROGRESS.

SURGERY.

Improvement in the Method of Local Anesthesia.—In a clinical lecture, A. E. J. BARKER (Lancet, July 25, 1903) advises preparing solutions for local anesthesia as follows: 3 grains of beta-eucaine and 12 grains of sodium chloride are dissolved in 3½ ounces of boiling distilled water and then 15 drops of 1 in 1,000 adrenalin chloride solution are added when the fluid is cool. Two and one-half drams will generally suffice and a radical operation for inguinal hernia can well be done with this amount if the injection is made all around the neck of the sac and into the superficial structures. It is necessary to wait twenty minutes after the last injection for the full effect of the adrenalin to develop. Due regard must be had to the position and course of nerves supplying the structures to be dealt with.

Cholecystenterostomy Combined with Enteroanastomosis.—D. MARAGLIANO (Centralbl. f. Chirurgie, Aug. 29, 1903) finds a decided advantage in uniting the ascending and descending limbs of the loop, where an anastomosis of the intestines with the gall-bladder is done. The amount of intestinal contents which passes the opening in the gall-bladder is thereby reduced to a minimum and the pressure of the gut upon the biliary passage is also diminished, thus preventing a stasis of bile. The only disadvantage is that the operation is somewhat prolonged.

Treatment of "Toy Pistol" Wounds.—The supposedly innocent celebration of our independence has, during recent years, cost the lives of so many of our enthusiastic young Americans that the treatment of these small but dangerous wounds becomes a very important matter. W. S. SCHLEY (N. Y. Med. Jour., Aug. 29, 1903) describes the methods which have been found at St. Luke's Hospital to give the best results. The wounds are usually of the hand and are nearly always produced by the discharge of the blank cartridge pistol of small caliber in the effort to cock the arm while held with both hands. An important point frequently overlooked is the surprising extent of damage done beneath the surface, often when the exterior, except for its small blackened hole, shows so little indication of the condition beneath. In a number of cases with the wound near the metacarpophalangeal joints, the effect of the powder blast, the powder grains, and a few times the wad itself, were found under the palmar fascia, almost as high as the annular ligament. In others, powder grains and wads have been found near the dorsum of the hand and well above the injury in the palm. The force of the discharge appears to follow along the lines of least resistance and spread extensively in the connective tissue planes if the muzzle of the pistol is not more than an inch from the skin. The best results have been obtained with a free longitudinal skin incision and with good retraction continue the cut till the limits of all blackened tissue and powder grains have been reached. This requires better observation and more careful dissection than at first sight appears necessary. A small blackened spot not infrequently will lead to a large blackened area in another and unexpected direction, which also contains blackened sloughy tissue and powder grains. Sloughy areas and extraneous matters are curetted gently away with free irrigation of the wound with boric acid or 1 in 5,000 bichloride. A comparatively loose, moist, iodoform-gauze packing with a large wet dressing of 1 in 5,000 bichloride is then employed and kept wet at home. Through and through drainage is used when the hand has been nearly perforated. In regard to the wads, two is the rule and one of them may be tucked away in some recess made by the blast. General anesthesia is usually more satisfactory, unless the patient presents himself soon after the accident. No cases of tetanus have developed after this method of treatment and only a few cases have developed a cellulitis which necessitated further incision.

New Method for Reaching the Subdiaphragmatic Space.—Most surgical procedures for freely exposing the space between the liver and diaphragm are complicated and dangerous and a number of them have not yet been tried successfully on the living subject. The following comparatively simple method has been devised by G. MARWEDEL (Centralbl. f. Chirurgie, Aug. 29, 1903) and employed with good results in one case. A curved incision is carried from the ensiform process to the tenth rib, two fingers' breadth away from and parallel to the costal border. By dissecting the upper flap of the wound the costal margin will come to view. The seventh rib is then divided close to its sternal end and the rectus and external oblique are dissected free from the seventh, eighth and ninth ribs. By dividing the three cartilages near their junction with the bone and then raising the flap of bone and soft parts, free access to the hypochondriac region is obtained. If

necessary, the ribs themselves may be divided and more ribs may be included in the flap but care must be taken not to wound the pleura above the seventh. On the right side a large portion of the anterior surface of the liver comes to view and the space may be enlarged by dividing the suspensory ligament. On the left side, the upper portion of the stomach and the cardia can be easily reached. The ribs reunite firmly after the operation and no discomforts remain behind.

Tuberculosis of the Kidney and Ureter.—Two different forms of this disease must be considered in these organs, viz.: Miliary or acute and the caseous or chronic. According to J. Wesley Bovée (Am. Gyn., Aug., 1903), the diagnosis of tuberculosis of the kidney and ureter is to be determined when possible by a careful scrutiny as follows: (1) A careful study of the case history; (2) physical examination of the kidney and ureter; (3) careful urinalysis; (4) tuberculin test; (5) inoculation of animals. Albarran found that of the 203 patients operated upon for renal tuberculosis but 55 were men. The symptoms vary with the progress of the disease, the character of complications and the route of invasion. Acute miliary tuberculosis of the kidney is often found post mortem in children who have died of acute general miliary tuberculosis and, perhaps, with no symptoms of renal involvement, unless it be polyuria. Pain is one of the most constant symptoms of the disease. If the type of involvement be descending, then the pain is localized in the loin at first. It is persistent at that time, but not severe and may not be attributed to this disease. The duration of suffering from the pain may vary from a few months to many years. If the process is ascending then severe pain from the early stages is present and gradually extends to the loin. At times the pain is colicky in character, as a result of temporary obstruction to the flow of urine along the ureter. At such times vomiting is not uncommon. Frequent or painful micturition or both are common symptoms. One of the author's patients would empty her bladder as many as 200 times a day. A slight fever may be present from the onset, particularly with the ascending type. Chills are not at all uncommon and night sweats are to be expected in several cases. Emaciation also present. The enlargement of the kidney, is usually, but not always, due to the presence of pus collections in the organ. It may be regular or nodular in its outlines. The examination of the urine for the presence of the tubercle bacillus is most important. The Torssells method for finding the bacillus is advocated. The failure to get satisfactory results with the tuberculin test affords very good evidence that the individual is free from tuberculosis. In the advanced stages of the disease we may expect to find marked emaciation; fever, chills, night sweats, severe localized constant pain, frequent and painful micturition day and night; perhaps the presence of evidence of tuberculosis in other structures; a mass of considerable size in the loin, with a hard, smooth or nodular ureter; urine loaded with pus or blood, or both, but not having the foul ammoniacal odor so suggestive of cystitis. The prognosis, in short, depends in the first place to a great extent as to whether climatic treatment is available in early cases—though even here nephroureterectomy would be preferable, and, secondly, whether in the latter stages the procedure is justified and performed when the disease is limited to one kidney and ureter. Under all other conditions cure cannot be expected but amelioration may follow operation.

Suburethral Abscess.—This condition usually manifests itself as a well-defined, roundish or oblong swelling of the anterior vaginal wall just under the urethra, and may be located anywhere along its floor—from half an inch above the meatus, almost up to the neck of the bladder. Its capacity may vary from a few drops to two ounces of pus. Usually, says C. Jeff. Miller (Am. Gyn., Aug., 1903), its orifice is to be found at about the middle third of the urethra. If the sac is situated in the middle or lower third of the vaginal septum, it usually bulges in the vaginal outlet and can be seen without opening the labia, while those situated higher up, near the proximal end of the urethra, may be overlooked, unless they are of considerable size and tense on pressure, and the case treated as one of cystitis, or merely as an "irritable bladder." If the cyst is not draining well, a smooth, cushion-like sensation is imparted to the touch on vaginal palpation. The cause of this affection is not always clear. Kelly states that the gynecologist usually sees such cases only after they have become long standing. Some cases are attributed to peri-urethral inflammation, which sometimes suppurates and ulcerates into the urethra; while no doubt chronic, circumscribed urethritis or the glandular urethritis of gonorrhœal origin, is responsible for others. Diverticula from the urethral wall, retention cysts, blood cysts following injuries, as in confinement, cause a type which is frequently easily differentiated from abscesses following periurethral suppuration. The symptoms are usually painful urination and a sense of heat and aching distress in the urethra. Sometimes pus is discharged suddenly, at other times it oozes constantly from the urethra, and may be mixed with the urine. By making pressure downward along the urethra the sac can usually be emptied most readily. The urethral speculum is even more valuable as a diagnostic aid than in treatment. Urethrocele, a sacculation of the middle third of the urethra can easily be confounded with these abscesses. Experience has taught the author that surgical treatment should be promptly instituted, though one is prone to adopt general cleansing methods, daily emptying of the sac and the introduction of antiseptics; but at best such treatment requires a long time. On the other hand, a complete fistula is no more annoying to the patient, and is usually much easier to relieve if the proper after-treatment is observed. In cases in which the urethra can be thoroughly dilated and the abscess opening enlarged so that the pus can readily escape spontaneously, cure frequently occurs, but, when the condition is the result of peri-urethral inflammation, this is not always feasible. After incision of the sac, a retention catheter should be worn, or the bladder emptied at regular intervals by a soft rubber catheter, in order to prevent contamination of the wound. Some prefer to exsect an elliptical portion of the sac or dissect out the entire sac and operate as in an ordinary fistula, but even the opening may fail to close, rendering subsequent plastic operations necessary. With thorough incision and cleanliness of the sac and vagina and employment of the catheter, most cases will close within eight to ten days.

Ureterocystostomy.—This is a term applied for an operation for implanting a ureter into the bladder. It is applicable, says J. W. Bovée (Am. Gyn., July, 1903) to such conditions as ureterovaginal fistulæ from various causes, principally operations on the female genital organs following complications, or following complicated parturition. Numerous other causes of fistulæ are recorded, such as tuberculosis of the lower portion of the ureter, erosions from ureteral calculi, accidental traumatisms, syphilis, etc. Resection of the ureter for various causes may often call for implantation of the ureter into the bladder. Slight injuries to the wall of the ureter should close spontaneously, particularly if slight support be made to the point of injury with gauze packing. Failure to secure this result would demand closure by suturing, provided the opening be small and involve but little of the circumference of the ureter.

The operation is not the one of preference for lesions between the pelvic brim and the lowest two inches of the ureter. Here no doubt can exist of the advantage of end-splicing in some form. The routes by which the bladder implantation of the ureter have been done are the extraperitoneal, the intraperitoneal the transperitoneal, sacral and the infrapubic. The Veit and Witzel trans- and extraperitoneal operations are by far, the most free from objections. There is combined the advantages of sufficient working space, and rapidity in finding to make the implantation. If possible, the drainage should be extraperitoneal. Permanent ureteral catheterization is inadvisable but constant; bladder irrigation should be continued from three to five days, after which catheterization every two or three hours for a week should be all that is necessary. The principal complication from this operation is infection. This is due to preexisting infection, which is quite common in chronic ureteral fistulæ. Sometimes a bladder fistula is present and renders great liability to infection. Plastic vaginal operations persisted in afterward lead to infection (urinary). If done in the course of abdominal operation, particularly if infectious, the danger is enhanced. Tuberculous or syphilitic lesion increase the tendency to failure. The re-employment of permanent suture material like silk no doubt leads to complication. Incrustations of lime salt form thereon whenever urine comes in contact with them. Bladder tenesmus occurs from their acting as a foreign body in their wall, even when encysted, and their well-known uneasiness in tissues finds no exception in the bladder wall. The subsequent histories of ureterocystostomies is not well known. It is probable the result is satisfactory, though Polk had ureteral dilatation from too much constriction in one case and Pozzi had a similar result from an opening too large at the junction. Of the 80 cases tabulated by the author, in 1900, 7 have died, a mortality rate of 8.75 per cent. Four of the cases were those where the grafting was done in the course of an abdominal operation and in one of these, for other conditions, death was attributed to an independent cause. The additional 31 cases have recovered, making the mortality rate for 111 cases 6 per cent. It cannot be considered a grave operation. When no complications exist and as it becomes better known, it is believed that the mortality rate will be almost nothing.

GENITO-URINARY AND SKIN DISEASES.

Suprapubic Operation for Varicocele.—A very satisfactory method of operating for the radical cure of varicocele is described by R. M. THORNBURGH (Med. Rec., Aug. 29, 1903): Most of his patients have been from recruits to the regular army and the rule has been followed that he should operate only upon those cases in which the varicocele was as large or larger than the sound testicle. The suprapubic route, which he employs, is claimed to be preferable because the site of operation can be more readily rendered sterile, a dressing once applied will remain in place indefinitely and primary union is practically certain. After the usual preparations the finger is introduced into the external ring and a nick made with a knife directly over the tip of the finger. With this nick as a guide an incision 3 cm. long is made parallel to Poupart's ligament. The deep fascia is cut through and then by blunt dissection the cord is brought into view and the vas carefully isolated. The testes can readily be brought into view by gentle traction on the cord and the veins are separated down to within an inch of the testicle. The vessels are also separated from the cord in an upward direction for 6 or 7 cm. The vessels are then tied with No. 3 cumolized catgut and the vessels between the ligatures (5 to 6 cm.), excised. The ends are approximated and the ligatures tied to each other, thus forming a support for the testis. At the end of ten or twelve days the dressing is removed and primary union may be expected.

Hereditary Tardy Syphilis.—The symptoms of hereditary syphilis are generally manifest at birth or appear within the first two or three months. They are the same as in the acquired disease of adults, but differ in their sequence and in the regularity of their appearance. In tardy hereditary syphilis, tertiary signs may make their appearance as late as the twentieth year. JORDAN (Münch. med. Woch., Aug. 4, 1903) divides these cases into two classes, viz., where syphilitic manifestations were present in earliest youth and had disappeared with proper treatment, and, secondly, where these late signs gave the first clue of infection. This class is not recognized by many syphilographers, but two undoubted cases are cited. It generally appears as a bilateral affection of the knees, either an arthralgia, a simple chronic hydrops, a syphilitic tumor albus or a deforming arthritis. It is often extremely difficult to make a diagnosis, but if no direct history is present and antiluëtic treatment should be resorted to in all symmetrical cases, which resist other measures, especially if there are marked fluctuations in the course. Often the presence of a parenchymatous keratitis will assist the diagnosis.

EYE, EAR, NOSE AND THROAT.

Cause and Specific Treatment of Hay Fever.—A preliminary report has been made upon the specific treatment of hay fever by the use of an antitoxine serum which is produced by injecting the pollen from rye and other plants into animals. This experimentation has been carried on in Germany by Prof. Dunbar and samples of the toxin and antitoxin have been used in this country during the past few weeks by E. MAYER (N. Y. Med. Jour., Aug. 8, 1903). It was found that one drop of the toxin placed in the eye of a person susceptible to the June hay fever resulted in a local inflammatory condition of the conjunctiva and all the other symptoms of hay fever, but that it had no effect when dropped into the eye of one non-susceptible. Furthermore, when the symptoms had developed as the result of the toxin they could be easily allayed by the use of a few drops of the antitoxin. Investigations have not yet been completed, but it would seem that it would undoubtedly be necessary to produce toxins and antitoxins from various kinds of pollen in order to successfully treat the numerous cases of hay fever which occur at different seasons of the year and under widely different conditions.

Primary Sarcoma of the Iris.—A personal experience with a case of primary sarcoma of the iris in which excision of the tumor was followed, after a lapse of years, by recurrence of the neoplasm at the site of operation has served to strengthen the conviction of H. COPPEZ and J. de VAUCLEROY (Jour. Méd. de Bruxelles, Aug. 13, 1903) that enucleation is imperative in all such cases, as the tumor is believed to remain rarely localized; prolongations being sent out from it and penetrating between the fibers of the ciliary muscles and insinuating themselves in the sheaths of the anterior ciliary vessels and spreading thence to the sclerotic coat. The tumor may also invade the canal of Schlemm and from there extend far beyond its original site, invading the entire cornea; and finally, metastatic foci may be seen in the apparently healthy tissue of the iris. The development of a sarcoma is slow, yet if it once reaches the sinuses, such as the suprachoroidal, where its progress is unimpeded, its development is very rapid, and it may then extend widely and quickly.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

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LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, OCTOBER 24, 1903.

PHILANTHROPY AND TUBERCULOSIS.

THE power of a man who has triumphed over obstacles is irresistible. It was Robert Louis Stevenson's determined efforts to live and to enjoy the living that made his influence so stimulating, but an even greater enthusiasm is aroused in the minds of his brethren over the successful living and doing of Dr. E. L. Trudeau, whose paper on the "History of the Tuberculosis Work at Saranac Lake" is published in this issue of the MEDICAL NEWS.

It would be impossible for Dr. Trudeau to have sketched the history of this first great public Sanitarium for tuberculosis in America, without making it somewhat personal, for it was from himself as patient and physician that the whole idea grew, but so modest are his references to his own work, that it devolves upon us to say that no one in the country deserved more the honor of being invited to give this, the first of the series of six addresses, to be delivered at the Phipps Institute for the Prevention, Treatment and Study of Tuberculosis.

Bacteriology, therapeutics and philanthropy all housed together with the spirit of a brave but sick man, have turned a few hunters' cabins into a great Sanitarium resort. Through his patient, persistent efforts the needful money has come, and the principles involved in the treatment have become established. In short, the way has been paved for the intelligent and appreciative application of the magnificent gift of Mr. Phipps' millions.

The success of American citizens we feel is largely due to the generosity of wealthy men who have made general education possible through the founding of libraries and colleges.

During the last few years, however, an even greater gift than education has been given to the nation. The corner-stone of the foundation of National Health has been laid by the establishing of such institutes as the Rockefeller Institute for Preventive Medicine, the McCormick Institute for the Study of Infectious Diseases, and the Phipps Institute that, we hope, will in the course of time, drive tuberculosis out of the land.

If one man, self-trained, far from laboratories, with crude home-made appliances could in thirty years work out his own salvation, as well as the salvation of thousands of patients, and at the same time impress his ideas on a skeptical community, what cannot a trained corps of men with plenty of means do, in furthering the study and treatment and prevention of tuberculosis, under the direction of the Phipps Institute?

RECENT PROGRESS IN TYPHOID FEVER.

ANNUALLY, at this period, the typhoid fever curve rises highest in practically all of the large cities of the country. It is important, therefore, to recall helpful recent advances in our knowledge of the disease and especially of its diagnosis and treatment.

The more carefully the Widal test is made, the more clear does it become that many of the continued fevers of adult life, which used to masquerade under other names, are really typhoid fever with some anomalous symptoms. Two of the continued fevers that were popularly supposed to be frequent in the spring and fall particularly, so-called gastric and bilious fever, are now conceded by practically all careful physicians to be nothing more nor less than typhoid fever. As stated by Dr. Elsner, at the meeting of the Medical Society of the State of New York, last week (see MEDICAL NEWS for this week, p. 808) gastric symptoms may not infrequently occur at the beginning of typhoid fever and the initial rise of temperature may be followed by jaundice, which persists for some time, yet the Widal test will show that the primary etiological factor in the condition is the bacillus of typhoid fever. This

bacillus, as is now well-known, finds a favorite habitat in the biliary tract and may exist there for a considerable period before invading the intestinal tract proper, or even may be limited in its ravages to the mucosa of the gall-passages.

As time goes on, further confirmation is added to the opinion—now becoming universally prevalent—that typhoid fever is much commoner in children and even in young infants, than was formerly supposed. Continued fever in a child that cannot be shown to bear a definite relation to some pathological condition of the respiratory tract or to some acute gastro-intestinal condition, must be suspected of being typhoid and a series of Widal tests should be made. Not infrequently infants seem to suffer from a mild form of the disease and the skin eruption particularly is apt to be scantier and less characteristic than in adults. The number of rose spots, of course, in any particular patient, bears no relation to the severity of the disease and not infrequently fulminant typhoid fever with hemorrhages early in the affection, may occur where there have been only a very few spots, or where the cutaneous eruption is altogether absent.

With regard to the prophylaxis of typhoid fever, it is evident that much more exacting precautions are necessary than have been hitherto considered advisable. As reported by Dr. Field, in the symposium before the Medical Society of the State of New York, drying does not affect typhoid fever bacilli unfavorably nearly so soon as thought, one observer having found that even after cultures of the bacilli had been dried and ground up into dust, the micro-organisms did not lose their ability to multiply after more than twenty-five days had passed. This shows a surprising vitality of the bacillus, especially considering the fact that hitherto this germ has been thought to be very readily killed by such unfavorable conditions.

In the October number of the *American Journal of the Medical Sciences*, the report of an epidemic of typhoid fever in Ogdensburgh, N. Y., seems to show that typhoid fever bacilli may retain their vitality in ice for many months and then prove a fruitful source of contagion. While it has been known that mere freezing did not kill the bacilli, it has been hitherto thought that prolonged retention in a frozen condition, that is, for more than a month, did effectually prevent any further propagation of the germs.

It seems clear then that even more careful precautions than heretofore customary will have to be taken in order to guard against the possible use of infected food and water. As a source of infection the urine has now come into at least as much, if not more, prominence than the feces. As was very well said in the discussion of typhoid fever, at the meeting of the State Society, much more care will have to be taken by the examining physician in the handling of urine than is the custom at present, if infection is to be successfully evaded. The present careless habit of hospital residents in slopping around with the urine of typhoid fever patients is an index of the fact that our knowledge of the possible infectiousness of the urine is as yet only theoretical and has not entered upon its practical stage. The urine has to be disinfected quite as carefully as the stools and all vessels in which it has been contained, and all bed-clothing stained by it must be treated as objects likely to convey the disease.

With regard to treatment, the most important feature of progressive therapeutics, is a growing tendency not to limit the diet of typhoid fever patients as exclusively to milk as has been hitherto the case. As has been frequently pointed out, while milk is a liquid food when swallowed it does not remain liquid in the stomach, but is at once coagulated into masses which, under certain circumstances, are quite hard. As matter of fact, patients fed exclusively on milk pass a considerable amount of fecal material in a semisolid condition. The addition of cereals to the milk usually is very grateful to the patient and does not seem to add any special danger of producing complications. Not so long ago the cereals were thought to be likely to produce fermentative conditions in the intestinal tract which led to discomforting tympanites. The practically universal experience of prominent specialists in children's diseases, however, seems to show that on the contrary the addition of cereals to the milk in the dietary of children lessens the tendency to fermentation and that somehow the acids produced during the course of cereal digestion have an antiseptic effect and actually lessen the tendency to gas formation. This has now become the generally accepted teaching in pediatrics and on the strength of it milk, for infant feeding, is nearly always diluted with barley water or some other cereal solution that does not allow its coagulation into solid lumps in the stomach. It would seem only proper then that the general practitioner should take advantage of this important dietetic principle in the care of his typhoid fever patients.

There is no doubt, moreover, that certain meat preparations, which are very much craved by typhoid fever patients and which may be administered in the form of soups, are not only likely to add important elements almost necessary for the lowered nutrition of the patient but form also very valuable adjuncts for the digestion of food materials in such a way as not to inconvenience the patient. A mixed diet is relished and its digestion is accompanied by less subjective discomfort. Under these circumstances it is not so difficult to keep vitality almost up to the normal standard and thus lessen the danger of complications, relapses and sequelæ. It is now generally recognized that the lowered resistive vitality consequent upon an exclusive milk diet in a patient who does not digest milk well rather predisposes to hemorrhage and perforation, both of which are reported in many cases where nothing but milk was exhibited from an early stage of the disease. With any diet the physician must make it a rule to see the stools every day and judge of their possible irritating influence by actual inspection rather than from any theoretical considerations as to the harmlessness of a special diet.

MEETING OF THE NEW YORK STATE MEDICAL ASSOCIATION.

One of the most interesting features of the meeting of the New York State Medical Association during the past week (the proceedings will be found in the present issue of the Medical News, page 813) was the presence beside the President of the Association of the President of the Medical Society of the State of New York. Last week the President of the State Association had been present in his official capacity in a seat beside the President of the Society. It is evident that the two organizations which have represented the medical profession in New York are at last definitely coming together. When the formal response from the Secretary of the State Medical Society announcing that a committee had been appointed by the Society at its semi-annual meeting with full powers to confer with the corresponding committee appointed by the State Association, for the consideration of reunion, the reading was received with enthusiasm that easily proclaimed the general interest in this important reorganization movement. The words of President Bristow of the State Society, of President Wiggin of the State Association and of Dr. Simmons, the permanent Secretary of the National Association, seemed to make assurance doubly sure that disunion of the profession in New York is forever at an end.

The scientific sessions of the State Association have been attended by large numbers and the afternoon sessions of Wednesday and Thursday particularly tested the full capacity of Hosack Hall. There were many interesting features of the scientific work. On the first day, Dr. Tuttle's peper and presentation of patients in illustration of the effect of extirpation for rectal cancer proved that this condition so commonly considered to be hopeless is amenable in many cases to enterprising surgery. The discussion of this paper brought a number of opinions that show that cancer of the rectum is by no means the absolutely fatal condition that it was considered to be only ten years ago and that the former practice of making an artificial anus, leaving the cancer to progress to its inevitable fatal issue is scarcely justifiable except in extremely advanced cases. Apparently hopelessly extensive invasions of neighboring tissues and of higher portions of the intestine are not always contra-indications to radical operations but may sometimes permit of the removal of sufficient malignant tissue not only to make patients comfortable and prolong life for months, but even for years. This fact was very well brought out by the patients exhibited and by the contributions of those who took part in the discussion of this subject.

In the discussion on pneumonia it was very clearly brought out that this affection is now generally conceded to be an infectious disease having local lesions in the lung, but by no means limited in its pathological effects to these organs. The treatment therefore must depend on the other conditions present and must not be limited to local treatment directed to the pulmonary consolidation. This same truth was emphasized last week in the discussion on the treatment of typhoid fever in the proceedings of the Medical Society of the State of New York (see Medical News p. 808). These considerations mark the present positions in the rational therapeutics of these diseases. Under the influence of this idea, the poultice and even the woolen jacket become matters of secondary importance. There is no doubt that they have been abused in the past and that especially in children the application of the tight poultice has done not a little to hamper nature's effort at recovery by interfering with respiration.

The discussions on acute and chronic cholecystitis, on the ileocolitis of children and the non-operative treatment of salpingitis, on the after-

noon of the last day, brought the most successful meeting in the history of the New York State Medical Association to a fitting close. It seems not improbable that with this the twentieth annual meeting the Association will cease its existence as a separate body and become merged with the Medical Society of the State of New York. The committee of arrangements who have had the present meeting in charge may well look back with pardonable complacency on the success of this meeting as representing the acme of determined effort to give the medical association of the State a fitting place among the State medical organizations of this country.

"WORKING ONE'S WAY" THROUGH MEDICAL SCHOOL.

WE have just received a copy of the report of the secretary of the Committee on Employment of Students at Columbia. While interested chiefly in the portion relating to the medical students, it is interesting to note that in the whole university 450 applied to the committee for work and that the total earning of 273, with and without aid, from May, 1902, to May, 1903, was $57,724.57—a worthy commentary on the efficiency of educated labor.

As one might suppose, this investigation shows that the time of a student of medicine is very largely taken up with college work. According to data which were not, however, as comprehensive as is wished for, thirty-one hours of each week are spent at lectures, recitations, etc., and twenty-six hours in preparation for them. Four hours go to "outside reading," thirteen hours are spent in recreation, and three hours are reserved for remunerative employment. This seems as it should be, for no man can afford to dally in preparing for his life-work; and especially is this time of preparation for medicine, when both the doctor's reputation and the welfare of his patients depend on what he has been able to learn and use to advantage in dealing with disease.

During the summer, however, six students at the College of Physicians and Surgeons reported an aggregate earning of $465.50, averaging $77.58. The academic year allowed 21 such to accumulate $789.82, an average of $37.61. As to the way such money is earned the report says: "Generally speaking, the amounts earned by students at the Medical School are small. The largest amount earned by one student, who acted as clerk, was $205. A licensed druggist among the students earned about $200 at his profession. A stenographer and typewriter made about $125. Several students, as masseurs and nurses, earned small amounts."

While all this does very well for a certain few, certainly the majority should leave employment, outside of necessary preparative work, entirely out of their daily scheme. Even if the time can be spared it leads to mental distraction and uses up a supply of nervous energy that might a great deal better be held in reserve for hospital examinations.

ECHOES AND NEWS.

NEW YORK.

Honor to an American Neurologist.—Dr. B. Sachs' Treatise on The Nervous Diseases of Children has been translated into Italian by Dr. Luigi Colombo, of Varese, and a French translation of the same work is also in press.

Day Treatment for Blackwell's Island Patients.—Commissioner Homer Folks of the Department of Charities announces an improvement in the service of the tuberculosis hospital of the Metropolitan Hospital on Blackwell's Island by the institution of a system of day treatment. At present there are about 330 male and 70 female patients resident at the hospital. Mr. Folks came to the conclusion that a number of female consumptives who would otherwise be benefited by the treatment are precluded from staying at the hospital by the necessity of attending to household duties. He has instituted the day treatment system, by which women visit the island during the day and are given the open-air treatment, together with the medicines and good food which the regular patients receive. The women return home at night.

The Legal Meaning of "Medical Attendance."—In giving opinion on the case of J. Luther Pierson of White Plains, held guilty of criminal neglect in allowing only a faith cure healer to attend a child ill with bronchial pneumonia, Judge Haight, for the Court of Appeals, defined "medical attendance" as attendance by an authorized medical practitioner. He said: "The legislature first limits the right to practise medicine to those who have been licensed and registered, or have received a diploma from some incorporated college conferring upon them the degree of doctor of medicine; and then the following year it enacts the provision of the penal code, under consideration, in which it requires the procurement of medical attendance under the circumstances to which we have called attention. We think, therefore, that the medical attendance required by the code is the authorized medical attendance prescribed by the statute, and this view is strengthened from the fact that the third subdivision of this section of the code requires nurses to report certain conditions of infants under two weeks of age 'to a legally qualified practitioner of medicine of the city, town, or place where such child is being cared for,' thus particularly specifying the kind of practitioner recognized by the statute as a medical attendant. Sitting as a court of law for the purpose of construing and determining the meaning of statutes, we have nothing to do with variances in religious belief, and have no power to determine which is correct. We place no limitations upon the

power of the mind over the body, the power of faith to dispel disease, or the power of the Supreme Being to heal the sick. We merely declare the law as given us by the legislature. We find no error on the part of the trial court that called for a reversal."

Our Health Service in a New Rôle.—The following story is told of Dr. Lederle's office in the *Sun:* "Again, last Sunday evening, the burglar alarms that perch on the outside of buildings in East Tenth street between Broadway and University place began to ring without provocation shortly after 9 o'clock and continued merrily on until 1:20 yesterday morning. Shortly after midnight a resident in the block, who had been unable to sleep for about three hours, hunted up a policeman and asked him if nothing could be done to stop the racket. 'I've done all I could,' he said. 'I've reported the thing to the station house, and that's all I can do. There's nobody in the building and I can't reach the blooming thing.' The citizen returned to his house, called up on the telephone the residence of Dr. Lederle, the Health Commissioner, and got the doctor out of bed. The citizen told his story. The Health Commissioner took the addresses of the clanging alarms and added: 'Glad you told me. I'll see at once what I can do about it.' Dr. Lederle lives in West One Hundred and Forty-third street. He received the complaint a few minutes before 1 o'clock. In twenty-six minutes thereafter an officer from the Health Department had got down to Tenth street, wherever he came from, mounted a ladder, obtained from somewhere, and muzzled the gongs. Ten minutes thereafter the residents on the block, who had been awake and cussing for hours, fell asleep. The same thing happened once last summer."

Scholarships for the College of Physicians and Surgeons.—The Harsen prize of about $600, awarded annually to that member of the graduating class who shall be found most proficient at the end of his course in all branches of medical teaching, has been divided up into scholarships. In making this change the committee of award have been guided by the fact that in past years the money has gone to those who were in no special need of it, and it was conceived that by offering the prize in parcels of $200 to one man in each of the three upper classes more real benefit would be derived from the money. Accordingly the names of students worthy of help and who hold high standing in the present Second, Third and Fourth year rank are before the Committee on Scholarships at Columbia and the awards will be made before November 1. Under an agreement made by Columbia with the college in 1891 no student can be granted free tuition by the University proper, but the present instance does not come within the limits of that provision.

The White Plague in New York.—This is the title of a three-column article in last Saturday's New York *Evening Post,* a portion of which we quote as follows: "For the last ten years the deaths from various forms of tuberculosis in these two boroughs have averaged about 6,000 annually, the great majority being due to pulmonary tuberculosis, or consumption. How can the indifference of the public mind to this condition of affairs be explained? It seems that a plausible explanation lies in the fact that for generations people have been taught to believe that consumption was hereditary, and, when once contracted, incurable; that a certain large portion of each community had always been afflicted with this scourge and always would be; that those who were predestined to contract it would do so, and there wasn't much use in doing anything to prevent it. Three or four years ago a careful canvass was made through all the hospitals, and it was found that there were a little over 1,600 beds which could be used for tuberculosis patients. Since that time about 500 more have been added, but what a meagre provision this makes for the large number who require and desire hospital care! The available beds are always filled, and the readiness with which patients went to the temporary sanatorium established by the Department of Health on North Brother Island this past summer, until the limit of its capacity was reached, proves the necessity for institutions of this sort. It is along this line that the citizens of New York should wage a determined warfare for greater protection. If the people are aroused and make it plain that such hospitals must be erected, the authorities will heed the cry, and it will be done. The time is ripe for such a movement; the great need is an aroused public sentiment. There should be two classes of hospitals—one designed solely for protection to the healthy, where advanced cases, soon to become bedridden, and great sources of infection, may be placed. This class, which should accommodate at least 1,000 patients, must necessarily be situated in or very near the city for the purpose of rapid and easy transportation. For $5,000,000 sufficient hospitals, sanatoria, and dispensaries could be erected and equipped to provide proper accommodations for those requiring hospital care and treatment, and for the home treatment of those able to do light work. If the people of this city could only realize how many thousands suffering from this plague are employed in working upon the garments which go into their homes, in laundries, restaurants, and other places which bring them in close relations to the public, with all its dangers of infection, they would never cease in their demand for greater protection. Already one dispensary is being built for the home cases, to be under the charge of the Department of Health, and an appropriation will be asked from the Board of Estimate for one sanatorium which will accommodate 500 patients. Every man who has a vote and who cares not only for the life and health of the community, but the safety of himself and his family, should make it his business to demand the granting of this appropriation and of others in the future, until this city shall stand as a model for its care of the poor consumptive and the protection of its citizens from the ravages of the white plague."

Officers of New York State Medical Association.—The following officers were elected for the ensuing year: President, William Harvey Thornton, of Buffalo; Vice-President, Charles S. Payne, of Sullivan County, N. Y.; Treasurer, F. A. Baldwin, of New York City; Secretary, Guy Davenport Lombard, of New York City. Delegates to the American Medical Association: E. Eliot Harris, of New York City; J. W. Grosvenor, of Erie Co.

PHILADELPHIA.

Increase in Smallpox.—During the week ending October 17 there was a fresh outbreak of smallpox in the city for which the health officials are at a loss to place the cause. Refusal of vaccination is the only apparent reason. The new cases for the week numbered 54, an increase of 43 from the previous week.

Meeting of State Poor Directors.—The annual meeting of the Pennsylvania Association of Directors of the Poor and Charities was held at Lancaster October 13 and 14. Among the subjects under dis-

cussion was the placing of destitute children in country homes, the reputed mismanagement of Philadelphia institutions, and the question of caring for the sick. After a spirited discussion it was decided advisable to employ trained nurses for the sick in institutions for the poor, as invariably where they have been employed the death rate has materially decreased.

Death of Dr. Alexander.—Dr. H. M. Alexander, the founder of the vaccine farms that bear his name, died at his country seat at Conewago, October 13, aged fifty-two years. He graduated from Bucknell University in 1876 and in 1882 founded the Lancaster County vaccine farms.

Pathological Society.—At the meeting of the Philadelphia Pathological Society held October 15, the following officers were elected for the ensuing year: President, Dr. Alfred Stengel; Vice-Presidents, Drs. Joseph McFarland, M. P. Ravenel, W. M. L. Coplin and Joseph Sailer; Secretary, Dr. D. J. McCarthy; Treasurer, Dr. T. Westcott; Curator, Dr. A. P. Francine; Recorder, Dr. David Riesman.

Consulting Physicians for Eastern Penitentiary.—The following specialists have been recently appointed consultants to the Eastern Penitentiary in this city: Surgeon, Dr. Robert G. Le Conte; Physician, Dr. Judson Daland; Ophthalmologist, Dr. G. E. De Schweinitz; Otologist and Laryngologist, Dr. F. R. Packard; Alienist, Dr. Horace Phillips. The members of this staff will receive no remuneration for their services. Heretofore the resident physician, Dr. W. W. Leach, has been unable, except at his own expense, to call a physician in consultation.

Report of State Medical Examiners.—The annual report of the State Board of Medical Examiners shows the following averages obtained by medical students at the examinations of the State Board last June and the percentages obtained:

	Examined.	Passed.	Failed.
Jefferson College	92	83	9
Medico-Chi College	67	63	4
Woman's College	15	15	0
West Penn College	83	67	16
University of Pennsylvania	49	48	1

	Per cent. passed.	Per cent. failed.	Aver'g.
Jefferson College	90.22	9.78	79.45
Medico-Chi College	94.02	5.96	79.37
Woman's College	100	00	81.48
West Penn College	80.72	19.28	78.63
Univ. of Penna	97.96	2.04	83.22

Finsen Light at University of Pennsylvania.—Extensive experiments with Finsen light will soon be begun at the University of Pennsylvania as a result of the State appropriation of $25,000 for an X-ray laboratory and Finsen apparatus. The new department will be connected with the University hospital and will be housed in an addition to be built to one of the wings of the Agnew pavilion. The fourth floor of the present building will be extended over one of these wings to form a sun parlor which is being provided as a part of the scheme. Dr. H. K. Pancoast, who has had charge of the X-ray plant at the hospital will have supervision of the new department.

Judge Criticises Condition of Insane Asylum.—In the Pottsville court, Judge O. P. Bechtel recently criticised the crowded condition of the State Hospital for the Insane at Harrisburg, saying that 20 or 30 inmates were here and there huddled in bunches. The Superintendent of the Asylum states that Judge Bechtel is correct, the reason being that they are obliged to receive all persons committed by the courts and consequently have now 913 patients, when the capacity of the institution is but 700. Some rooms do contain 30 patients and they are severely crowded. Increase in room will soon make the capacity 800, but that will not relieve the congestion. The overcrowding has been present for ten years, but repeated statements in annual reports have failed to bring about a change.

Active Campaign against Tuberculosis.—At the fall meeting of the Pennsylvania Society for the Prevention of Tuberculosis vigorous plans were laid to educate the public in the sanitary and hygienic means of preventing the spread of tuberculosis. Meetings to be addressed by prominent physicians who will present to the people in a readily understood way facts regarding tuberculosis, its danger and control, will be held in every section of the city. The permission of Director Martin, of the Bureau of Health, will be sought for the erection of municipal sanitary billboards on lamp-posts or on posts of special design similar to those now in use in Fairmount Park. On them will be displayed circulars containing sanitary regulations. Newspaper advertising will also be used for the same purpose. Each week, in large type, will appear a short article by a physician, followed by the sanitary regulations, which if observed, will do much to prevent the spread of infection.

Jefferson Medical College.—Captain Charles F. Kieffer, Assistant Surgeon, U. S. A., will deliver to the senior class a course of ten lectures on Tropical Medicine. The list of subjects includes Dysentery, Sprue, Tropical Abscess of Liver, Uncinariasis, Filariasis, Trypanosomiasis, Elephantiasis, Beriberi, and Hygiene of Warm Climates. This year for the first time instruction in routine ward work will be given in the hospital by the resident physicians. Sections of the senior class, containing 12 men each, will spend 1½ hour each morning in either the men's surgical, women's surgical, or gynecological wards observing cases, writing histories, seeing cases dressed, etc. For the present year, at least, attendance upon this work will be optional.

New Hospital Buildings for Hahnemann.—Improvements to cost $500,000 will soon be begun by the trustees of Hahnemann Hospital. It is planned to erect three buildings on the plot of ground adjoining the present hospital building. One of these will be a home for nurses and is to be 40 by 84 feet in size and seven stories high. In the rear of this will be an equal sized building for a maternity and women's hospital. The third building will be utilized for a power plant, laundry, and dormitories. Improvements in the present buildings are also planned.

Laboratory of the Philadelphia Hospital.—Through the efforts of Dr. Martin, Director of Public Health and Charities, and Chief Resident Physician Biggs, the laboratory of the Philadelphia Hospital has been refitted and the service entirely reorganized. It is to be known as the Clinical Laboratory of the Philadelphia General Hospital and, with the museum of the institution, will be placed in charge of a director who shall serve throughout the entire year. The director, who has the privilege of appointing one or more assistants, must examine all clinical material sent to the laboratory, supervise the gross specimens used for teaching purposes and those removed at autopsy, and work up autopsy material when suitable. All articles written on material obtained at the hospital are to be credited to the

laboratory whether worked up there or by the visiting pathologists or physicians. Dr. Randle C. Rosenberger, who during the past summer did much to put the laboratory on a working basis, has been appointed the first director of the new department.

To Study Epilepsy.—The National Association for the Study of Epilepsy will hold its Third Annual Meeting in the Hall of the College of Physicians in Philadelphia on the afternoon and evening of November 5 next. The program includes, among other papers, the following: Presidential Address, by Wharton Sinkler, M.D., of Philadelphia, Pa.; A Treatment Room for Epilepsy and Some of Its Results, by Everett Flood, M.D., of Palmer, Mass.; The Treatment of Epileptics in Private Practice, by Wm. N. Bullard, M.D., of Boston, Mass.; Progress of the New Jersey Village for Epileptics at Skillman, N. J., by H. M. Weeks, M.D.; The Early Diagnosis of Epilepsy from Diseases Causing Epileptiform Convulsions, by Charles K. Mills, M.D., of Philadelphia; Report of a Case of Removal of the Ovaries and Tubes for Epilepsy, by A. H. Halberstadt, M.D., Pottsville, Pa.; Some Considerations Regarding the Surgical Treatment of Epilepsy, by J. Chalmers DeCosta, M.D., Philadelphia; Report of Cases of Trephining for Epilepsy, by John C. Munro, M.D., of Boston; Some Remarks on Animal Epilepsy, by L. Pierce Clark, M.D., of New York; The Psychological Aspects of Epilepsy, by W. P. Spratling, M.D., of Sonyea, N. Y. The Association extends a cordial invitation to all persons interested in charity, and especially in the care and treatment of epileptics, to attend its annual meetings. Applications for membership may be made to the President or to Dr. Wm. P. Spratling, Sonyea, N. Y., Secretary.

Pennsylvania Nurses' Convention.—The Pennsylvania State Nurses' Association held its first annual convention in Pittsburg on October 5. The organization of the State nurses was preliminary to the annual convention of the American Society of Superintendents of Training Schools for Nurses of the United States and Canada. A law similar to that which exists in New York, New Jersey, Virginia, and North Carolina, providing State examination boards for nurses, is greatly desired by Pennsylvania nurses, and the organization of the State nurses was effected with the especial object of obtaining a State registration law.

CHICAGO.

Changes at Dunning.—Details of a plan for the rehabilitation of the county institutions at Dunning were recently announced by President Foreman of the Board of County Commissioners. The expenditure of more than $500,000 in new buildings and improvements is involved and several scientific administrative reforms will be adopted. A summary of the plan follows: Erection of three new cottages for insane patients at an expense of $60,000. Erection of five cottages for consumptive patients, with a central administration building at an expense of $125,000. Erection of a modern morgue and pathological laboratory with an amphitheater for lectures. Erection of a training school for nurses and attendants. The present consumptive hospital to be converted into a hospital for invalid insane. Erection in Chicago of a branch hospital for consumptives where incurable cases may be treated. Erection of a central power house, surrounded by shops, where the patients may be provided with light employment, making clothing, brushes, and brooms for the use of the institutions. Installation of a vacuum system of steam heating in all the institutions. Light manual labor to be provided for all patients in good physical condition. Books and games to be provided for patients. Clubrooms for the use of the nurses and attendants of the institutions. Better protection against fire. Mr. Foreman disclosed his plan for the metamorphosis of the county institutions in an address delivered at the first meeting of the Citizens' Advisory Board, appointed several months ago to assist in the management of the county asylum for the insane, hospital for consumptives, and the infirmary. The advisory board heartily approved the reforms recommended by President Foreman and the commissioners present pledged themselves to carry out the suggestions. The members of the advisory board are Alexander A. McCormick, Charles H. Wacker, Louis M. Stumer, Willis S. Herrick, Theodore A. Kochs, William J. Onahan, Charles E. Bolles, Julius Rosenwald, William A. Alexander, Dr. Frank Billings, Charles O. Goss, John Rohlwing, Charles F. Cooke, Dr. J. B. Murphy, Dr. Sidney Kuh, Dr. I. A. Abt, Dr. E. R. LeCount. Dr. Murphy was elected chairman.

Fee for Appendicitis.—A jury in Judge Hutchinson's courtroom awarded Dr. Alex. Hugh Ferguson a verdict of $1,000 for medical services rendered Frank L. Loring, Jr., and his wife. Dr. Ferguson sued for $5,000. The physician declared he performed an operation on Loring for appendicitis, and, later, treated him for injuries sustained in a railroad accident. Another item was treatment given Mrs. Loring. Loring averred his salary is $15 a week and that the charges were too high for a person in his station of life to pay. Several physicians were summoned to testify in the case. Dr. J. B. Murphy declared no regular price could be fixed. Some of his patients, he said, he had charged $5,000 for an operation for appendicitis. From others he had received nothing.

Mortality for July in Illinois.—According to the mortality report for that month just published by the State Board of Health, there were, during July, 1903, 4,903 deaths in the State of Illinois. This report is based on the certificates of deaths received in the office of the board from physicians outside of the larger cities of the state in which burial permits are required, from the registration officials of these cities, and from the coroners of the several counties. These certificates were forwarded to the State Board of Health under the provisions of the birth and death law of 1903 which repealed the Act of 1901 requiring a burial permit. The report has been delayed by the failure of several county clerks to furnish physicians and coroners with blank forms for reports of deaths. A few weeks ago the State Board of Health had printed and distributed among the physicians of the state, over six thousand books of blank forms, and as a result several hundred belated reports have been received by the board during the past week. The published death-rate is slightly less than that of July, 1902, when 5,107 deaths were reported to the county clerks, but it is the opinion of the State Board of Health that many additional reports for July will be received during the present month. The reports for July, 1902, should be absolutely correct, as it was then obligatory on physicians to furnish a certificate of death before the burial of the body. The ten principal causes of death and the number due to each are given as follows: Gastro-enteritis in infants, 673; tuberculosis, 537 (tuberculosis of the lungs, 447; other forms, 90); accidents, 483; pneumonia, 218; typhoid fever, 88; suicide, 70; diphtheria, 57;

whooping cough, 50; measles, 39, and scarlet fever, 32. The reports for July, 1902, showed 681 deaths from gastro-enteritis in infants and 542 deaths from all forms of tuberculosis.

Donation to Presbyterian Hospital and the Chicago Home for Incurables.—By the will of the late Mr. Henry J. Willing, both of these institutions received $5,000. The amount donated to the Presbyterian Hospital is to be used to maintain a bed, to be known as the Mary Jane Willing fund, in memory of his mother.

Illness of Dr. Billings.—Dr. Frank Billings recently underwent an operation for gall-bladder infection. The operation was performed by Drs. L. L. McArthur and Arthur D. Bevan. The distinguished patient is doing nicely.

Headaches and Their Treatment.—Dr. Julius Grinker read a paper on this subject before a recent meeting of the Northwestern Branch of the Chicago Medical Society. Headache in most instances is only a symptom; in some it is the most conspicuous symptom, while in still other cases it is the only symptom and may assume the dignity of a distinct disorder by itself. Factors entering into its production are: Organic diseases of the brain or its membranes; circulatory disturbances, such as anemia and hyperemia, arteriosclerosis, toxicity, infections, etc. Iritation of the sensory nerve-filaments of the dura by pressure or inflammation is probably the direct cause of most headaches. In the diagnosis of headaches attention should be paid to the mode of onset, duration, intensity, and localization; each of these qualities is to be given due weight only in connection with accompanying symptoms. Cerebral organic headaches are usually very intense, circumscribed and constant, with or without remissions. They are described as cutting, boring or tearing; they may be dull and constant. Headaches caused by syphilis are worse at night or come on only towards evening. The nearer the lesion is situated to the cortex, the more intense is the pain and the more likely is percussion apt to elicit tenderness. The location of pain does not always correspond to the seat of the lesion. The eye fundi, the circulatory apparatus and the secretions will often furnish corroborative evidence, and enable one to make a correct diagnosis. Headaches due to circulatory disturbances in the brain cavity are divided into those caused by: (*a*) active hyperemia, (*b*) passive congestion, (*c*) enema, (*d*) arterial changes. (1) The headache of active hyperemia is perceived as a fulness in the head, with throbbing of arteries, injected conjunctivæ, flushed face. The headache is either diffuse or confined to the vertex; and is made worse by stooping or lowering of the head. (2) The headaches of passive congestion are not frequent. Causes are all conditions which interfere with the return circulation, viz., heart diseases, tumors pressing upon veins, tight clothing about neck. (3) Anemic headaches are often vertical in location, and are usually described as a hot, burning pain. They are relieved by the recumbent postures. (4) Arterial changes produce headache, either mechanically or by the anemia due to narrowing of lumen. The neuroses, hysteria, epilepsy, neurasthenia, etc., offer quite a contingent of all headaches. The hysterical headache is often described as though a nail were being driven into the top of the head; is called clavus hystericus and is similar to the syphilitic headache, except that the latter is worse at night, and the former is often improved by diverting the patient's attention. A careful search will reveal some of the so-called stigmata of hysteria. The epileptic headache usually comes on after the fit; is of the dull type, and sleep often terminates it. If the patient is forced to keep awake after a spasm, a postepileptic psychosis may develop. Headache may precede or may be the equivalent of a fit. The patients affected with epilepsy can mostly be recognized by their dull, listless appearance, the dilated pupils and sluggish mentality. Neurasthenic headaches are common and should offer no difficulty in diagnosis. These patients describe their headaches as paresthesias rather than pains. Many say they feel as though a tight band was constricting their heads or their skullcap is being lifted away from their heads, or there is a feeling of emptiness or fulness in the head. Most often they speak of a "misery" in the head, but no headache. The reflex headaches, the so-called "eye" and "uterine" headaches are in many instances only ordinary myalgic affections of the temporal and occipitofrontalis muscles. However, there are some genuine reflex headaches caused by disease in the accessory cavities of the head. The pneumogastric nerve, with its extensive distribution, may be held responsible for the headaches due to disturbances in the thoracic and abdominal cavities.

Toxemic Headaches.—Under this heading are included headaches due to the infections and poisons, both organic and inorganic. To mention a few: Typhoid, scarlet fever, smallpox, malaria, prodromal stage of syphilis, alcohol, nitroglycerin, quinine, opium, cocaine, copper sulphate, chloroform, ether, lead, tea, coffee, tobacco. The headaches due to defective elimination of waste products may also conveniently be placed here: uremic headaches, gouty, lithemic, rheumatic, gastrohepatic derangements, constipation headaches. All the toxic headaches have this in common, that they are usually of a dull, heavy type, are most often frontal; are apt to be worse in the morning and pass away in the course of the day. The headache of migraine begins in childhood or early youth; heredity can be traced in the majority of instances. It occurs at intervals and lasts from a few hours to a day. Vertigo, nausea, or vomiting may either accompany or wind up the attack, during which there is hypersensitiveness to light, heat, and noises. The headache may be unilateral throughout, or may extend from one side of the head to the other. The so-called auræ, such as zigzag lightning, scotomas, temporary hemianopsia, or aural manifestations may precede the attack. In its entire make-up, the migrainous headache may be considered the sensory equivalent of the cortical or subcortical motor explosion called epilepsy. There is one class of headaches for which no cause is usually ascertainable. These are the so-called nervous headaches, also called idiopathic. They are the expression of a general nervous constitution, exist from early childhood, and appear to be inherited. This headache is chronic in type. It may last months, or years, and may even accompany the individual through life. It may occur in paroxysms or be constant. Trivial causes, such as a slight indiscretion in diet, will bring them on, or they appear without any cause. The pain is variously described: boring, pressing, tearing; it may be a dull pressure, or very intense, with hyperesthesia of the scalp. Women are more predisposed than men; they suffer in their general health, become irritable and melancholic, and may become disabled from following a vocation. Altogether, it has a tendency to sour their dispositions. The treatment of a headache must be directed toward eliminating its causes. In anemia, iron, arsenic, bitter tonics, and rest in

bed are urgently indicated. In the headaches due to gastro-intestinal disturbances, antifermentatives and intestinal antiseptics are demanded. A brisk calomel purge has relieved many a headache due to constipation. In "reflex" headaches, the organs at fault should receive proper attention, and often the aid of specialists will have to be called in. Neurasthenic headaches are treated along the lines of the treatment for neurasthenia. A good dose of bromides has often done good. Hysteria requires its own treatment. The subjects of hysterical headaches being dominated by autosuggestions will tax the physician's skill to the utmost. Indirect suggestion and a frequent change from one remedial agent to another, beginning with the mildest and holding the most powerful psychic agents in reserve, are often successful. The headaches of arteriosclerosis are treated with nitroglycerin and small doses of the iodides. One point in the treatment of all varieties of headache is to give the patient immediate relief and such can usually be secured by the administration of the coal-tar products, such as antipyrin, phenacetin, and others of this class. The heart should always be guarded in the administration of the depressant remedies; or else we may cure the headache but lose the patient.

There is no specific for the headache of migraine. It either disappears or becomes less frequent and milder at the menopause in women, and in men at the age of sexual involution. During the attack, the coal-tar remedies, such as phenacetin, antipyrin, acetanilid, may mitigate the pain. It is very bad practice to resort to morphine except in the most aggravated cases. As a rule, patients prefer to be left alone in a darkened room with exclusion of all noises; no food is taken until the attack has passed off. Between attacks a reliable fluid extract of cannabis indica may be used in ascending doses, beginning with 2 to 3 drops three times daily until a dose just short of poisoning symptoms has been taken for a few weeks. This is the only thing that has been found beneficial in some cases, and therefore a trial appears to be indicated in a malady where so little can be done. For the so-called nervous headaches we must order regular exercise, fresh air, a simple diet, hydrotherapy local and general, local applications of menthol, ether, chloroform, massage of the scalp, if necessary. Regular stools and good sleep are essential. Galvanism cautiously applied to the head in the strength of 2 to 3 milliampéres has sometimes been effective. Of drugs, the most useful are: antipyrin, salipyrin, salophen, phenacetin, caffeine and the caffeine sodio-salicylate and bromides.

GENERAL.

Oil for Laredo's Mosquito Pest.—The official yellow-fever bulletin showed 27 new cases and two deaths up to October 14. The fever is now in every portion of the city. Dr. Tabor is expecting the arrival of a carload of oil from Beaumont, when the entire city will be saturated, and it is hoped the yellow fever mosquito will be exterminated.

Greenwich, Conn., Hospital Gets $75,000 Gift.—The town of Greenwich, Conn., on Oct. 14 declared the acceptance of a gift of a $75,000 isolated plant of four buildings from Robert M. Bruce and his sister Sarah E. Bruce for a contagious disease and emergency hospital. It is opposite Putnam Cemetery, on high ground, and has one stone house for smallpox and two others for other contagious diseases. The caretaker's house is equipped as an emergency hospital. Mr. Bruce once complained that his taxes were too low and that he and other rich men had been robbing the town by paying too small assessments. He said he would give it all back to the town in time. He now plans to build a $125,000 town building and give it to the town, and has purchased the land.

Gifts to Two Medical Colleges.—Two medical institutions are the public beneficiaries under the will of Dr. George Haven of Boston, which was filed for probate to-day. The Harvard medical school received $25,000 outright and a share in a residue, and the Boston Lying-in Hospital received the doctor's books and instruments, a gift of $20,000, and shares equally with the Harvard medical school in a residue. The executor estimates that the estate will amount to $30,000.

Mississippi Valley Medical Association.—The following officers were elected for the ensuing year: President, Dr. Hugh T. Patrick, Chicago, Ill.; First Vice-President, Dr. Bransford Lewis, St. Louis, Mo.; Second Vice-President, Dr. Geo. W. Cale, Springfield, Mo.; Secretary, Dr. Henry Enos Tuley, Louisville, Ky.; Treasurer, Dr. Thomas Hunt Stucky, Louisville, Ky. The time and place for holding the next annual meeting were left to the President, Secretary and Treasurer, to decide.

Toy Pistols a Curse.—The State Board of Health of Ohio to-day adopted a resolution by which their secretary is directed to take steps to prevent the sale of "toy pistols and other explosive appurtenances." The resolution cites that 600 persons were killed, 100 made blind, and 1,000 others injured on the last Fourth of July. The board therefore declares it to be the duty of health authorities to abolish the evils attendant upon the celebration of Independence Day.

Driving out Yellow Jack.—Prof. George Beyea, of Tulane University, an acting surgeon in the United States Public Health and Marine Hospital Service and a member of the Yellow Fever Commission sent to Mexico to study the source and progress of the disease, has returned to New Orleans, after an absence of five months. He speaks highly of the measures taken by President Diaz and the Federal Government of Mexico to fight yellow fever in the Vera Cruz district. As a result of their activity, when Prof. Beyea left Vera Cruz, in the first week of October, only five cases of fever were reported in the city. President Diaz is most desirous of ridding the country of the disease, and will undoubtedly carry on a vigorous campaign this winter to that end, to destroy completely the seeds of the fever in Vera Cruz and other infected centers. Prof. Beyea believes that Mexico, like Cuba, will be entirely free from yellow fever by 1904, and this will mean the practical extermination of the malady in the Gulf of Mexico.

Abolish the Toy Pistol.—At the Twenty-ninth Annual Session of the Mississippi Valley Medical Association held at Memphis, October 7, 8, 9, the following resolutions were adopted: In view of the fact that more than 400 deaths from tetanus occurred following the Fourth of July celebration of 1903, as shown by the statistical report elaborated by Dr. S. C. Stanton of Chicago, and published in the *Journal of the American Medical Association* of August 29, 1903, the great majority of which might have been prevented had proper precautions been taken: therefore

Be it Resolved, That the conclusions which follow, as offered by Dr. Stanton, in a paper presented before the Association, at the above meeting, be endorsed as the sense of the Association: (1) Enforcement of existing laws regarding the sale of toy pistols and other dangerous toys. (2) Enactment of laws by the nation, States and municipalities, prohibiting the manufacture and sale of toy pistols, blank cartridges, dynamite canes and caps, cannon crackers, etc. (3) Open treatment of all wounds, however insignificant, in which, from the nature or en-

vironment there is any risk of tetanus. (4) Immediate use of tetanus antitoxin in all cases of Fourth of July wounds, or wounds received in barnyards, gardens, or other places where tetanus infection is likely to occur. (5) As a fornlorn hope, the injection of tetanus antitoxin after tetanus symptoms have appeared.

Obituary.—Dr. Jean F. Chauveau died last week at his home, 31 West Sixtieth street. He was a graduate of Geneva, and was a member of the State Medical Association, the Academy of Medicine, the County Society, the Neurological Society, and the Society of Medical Jurisprudence. He leaves a widow and a son, Dr. Jean F. Chauveau, Jr., of this city, whose mother was Dr. Chauveau's first wife. Dr. Chauveau was about seventy-five years old, and death was due to a general breaking down of the system. He celebrated his fiftieth anniversary of entering into practice last June.

Dr. John L. Waldie, a well known physician in Brooklyn, died last Sunday, at his residence, No. 254 McDonough street, from kidney trouble, after an illness of two weeks. Born in Brooklyn thirty-one years ago, he was a graduate of the Long Island Medical College, a member of St. Mary's Hospital staff, and also of the Kings County Medical Society.

Dr. Robert Aberdein, for many years one of the most prominent physicians in Central New York, died last week in Syracuse at the Hospital of the Good Sheperd. Dr. Aberdein had been ill for three years and had been at the hospital three weeks.

CORRESPONDENCE.

THE EXPOSITION FOR INFECTIOUS DISEASES IN DRESDEN.

(From Our Special Correspondent.)

DRESDEN (Saxony), Germany, October 1.

THE STÄDTE AUSSTELLUNG—EPIDEMIOLOGICAL BUILDING—TUBERCULOSIS EXHIBIT—CHILDREN'S DISEASES—TYPHOID AND CHOLERA ASIATICA—SKIN DISEASES—MALARIA—SMALLPOX—LEPRA—PLAGUE—VENEREAL DISEASES—MICROSCOPICAL AND BACTERIOLOGICAL EXHIBIT—SERUM INSTITUTES.

FOR the last four months the residence city of Dresden, in Saxony, has been the seat of an exposition which has steadily attracted, and still attracts, thousands of interested tourists. The exposition is the first of its kind in history, and calls itself the "Deutsche Städte Ausstellung"—a combination of words which cannot be rendered into corresponding English, but which implies that the German cities have combined to give an exposition of all the factors that contribute to municipal progress. There are, of course, innumerable phases of so vast a project: modern methods of transportation, of lighting, of paving, of drainage, sewage systems, hospitals, policing—all of these and many other phases of that modern Proteus, the city, demand recognition and consideration, if, indeed, the exposition is really to fulfil the promise of its title. That the exposition has proved a tremendous success is simply another evidence of German energy and skill. One aspect of the exposition which has aroused particular attention and has met with unstinted praise is the department of public hygiene. A roomy, well-lighted building, especially erected for the purpose, has been devoted to the elucidation of what is fortunately one of the brightest and most promising sides of the terrible "city problem." Here are gathered contributions from many of the greatest specialists of Europe, from pathologists, from the governmental serum institutes, from municipal statisticians, and from the great manufacturing firms. The result is extraordinary. The exposition contains much that is old, much that is known to every graduate in medicine. On the other hand, it contains just as much that has never before been presented, much that is absolutely new. But whether old or new, it may truly be said that every detail has been presented in a manner to drive home its significance. It has evidently been the aim not only to interest the physician, the Fachmann, but to convey to the educated public at large some idea of the tremendous progress of hygiene, and of its results to mankind within the past half century. The aim has certainly been justified by the results: the building is crowded from morning till night, and has proved the greatest attraction of the vast exposition.

It would be very difficult to convey a complete idea of the contents of the building which is blazoned "Volkskrankheiten und ihre Bekämpfung." More than 200 microscopic specimens, presented by such men as Ruge, Duerck, and Pick of Prague, a thousand or more bacteriological cultures, many pathological preparations, innumerable charts, pictures, plates, and manufactured products—all those would seem to make confusion worse confounded. The arrangement of the collection, however, is so admirable, that one may study each single aspect of the subject completely in the room especially devoted to it, and so, by passing from room to room, acquire a clear notion of the entire complex.

The first room is devoted to tuberculosis. The city of München has presented some interesting tables covering the city mortality from this disease during the period 1880 to 1900. From these tables it is manifest that within this period there has been a decrease in the mortality at every period of life, but this decrease reaches the very considerable maximum of 10 per cent. for the ages between thirty to sixty years. Other tables present the mortality in the various countries of Europe during the year 1900, reckoned on a basis of 1,000,000 population; Russia leads with 4,000 deaths, while England, with 1,300 is at the bottom of the list. Schmorl, the pathologist of the city hospital of Dresden, has analyzed 400 autopsies from an entirely new point of view. He reaches the following very remarkable conclusions: Between the ages of five and fourteen years, active tuberculosis, previously unsuspected clinically, and first discovered at autopsy, is found in 20 per cent. of the cases; between eighteen and forty years, in over 10 per cent.; forty to sixty years, 15+ per cent.; sixty to ninety years, 20+ per cent. Quiescent tuberculosis, discovered first at autopsy and previously unsuspected, exists in almost 30 per cent. of the individuals between fourteen and thirty years; from the age of thirty years, the proportion of cases in which it is thus found continually increases, reaching almost 60 per cent. for the ages seventy to eighty years. When one stops to consider that the autopsies were almost entirely upon individuals who had been studied under particularly favorable circumstances, in the hospital, the proportion of undiagnosed cases is truly appalling. Another table presents a comparison of the number of cases presenting carcinoma with those presenting a combination of carcinoma and tuberculosis, at successive periods of life. It is rather striking that between eighteen and thirty years there are almost as many cases of carcinoma without tuberculosis as with it. Other tables illustrate the relation between the mortality from tuberculosis to the general mortality at successive periods of life. Between five and fourteen years, the mortality from tuberculosis is 50 per cent. of all deaths; fourteen to eighteen years, 33 per cent.; eighteen to thirty years, 50 per cent.; from thirty years upwards, the mortality relatively decreases. The figures are larger than those hitherto presented. The fatality of the disease is shown by the fact that of the cases between the ages of one and five years over 25 per cent. perish; eighteen to thirty years, more than

33 per cent.; thirty to forty years, more than 25 per cent.; at all other ages, it is less than 20 per cent.

The city of München presents an analysis of the cases of tuberculosis on the basis of occupation. Of 65,766 cases in the Poliklinik, 4,177 were diagnosed as tuberculosis. The greatest number of cases came from the classes described as workers in dust, and of these, especially those in metal dust, next come the workers of wood, such as carpenters, then the manufacturers of clothing, while the fisherfolk and farmers are apparently hardly represented. Notwithstanding these disheartening figures, the tables indicating the mortality from tuberculosis for successive years demonstrate that there has been a considerable reduction during the last twenty years in all the German cities except Breslau; in Dresden the mortality has fallen within the last thirty years from 50 to 20 per 10,000. Various other statistical tables are interesting. An English compilation shows that there is an invariable relation between the amount of water in the ground and the mortality from tuberculosis, in such wise that an increase in the former always occasions an increase in the latter. Figures from Hamburg for 1885 to 1900, show that the mortality from tuberculosis of each class of the population is in inverse proportion to its income. In addition to all these instructive tables, there is a very fine series of wax casts from the collection of Prof. Lassar, of Berlin, illustrating tuberculosis of the skin; Neisser, of Breslau, has presented a series of photographs. Schmorl has contributed the pathological specimens.

The next room is devoted to infants. Very interesting by way of comparison with a recent article by Freeman in the Medical News, are the city statistics of Nüremberg for 1861 to 1898. They show that although the general mortality has notably decreased, that of infants has been hardly affected. It would seem, according to the comment of the city statistician, that all the hygienic advances which have made during these years, and which have proved so beneficial to the population at large, have hardly touched the roots of infant mortality. The etiology of this tremendous mortality is the subject of a very large number of tables from various sources. A comparison of European countries shows that the mortality is greatest in Russia, where it reaches the awful proportion of 30 per cent.; strange to say, Germany is second. Mortality from all causes, but notably from diarrhea, is greatest from July to October. Dresden contributes a table in which the mortality of infants fed on mother's milk is compared with that of those brought up on artificial preparations or on cow's milk, and, as might be expected, the mortality is enormously greater among the latter. The bacteriology of milk is illustrated by a very full series of plates. Some new facts are brought out with regard to the amount of foreign material, chiefly cow dung, present in milk. This is determined by weighing the filtrate of 1 liter of milk. A vast number of specimens of milk from different cities was examined in this manner, and it was found that dirt was invariably present, varying in amount from 1 to 75 milligrams per liter. The first milkings always contain the most dirt, the amount of which decreases proportionally as the milking proceeds. From a hygienic standpoint, it would be wise to discard the first milkings. The results of giving filters of gauze, or other material, to the dairymen does not appear to be productive of benefit, inasmuch as the dirt, indeed, decreases, but the number of bacteria increases. The subject of milk is further illustrated to the laity by a concrete analysis of five liters of cow's and the same quantity of human milk, whereby the very considerable differences in the proportion of the various ingredients is forcibly borne home. Pasteurizers and sterilizers of every form and description are exposed and explained. It is safe to say that the educational value of this room alone is sufficient to reward the management for all their efforts.

The third room is devoted to typhoid fever, cholera Asiatica, and epidemic dysentery. The pathology and bacteriology of these conditions are amply illustrated, but the most interesting feature is the epidemiological analysis. A comparison of the hitherto recorded typhoid epidemics upon basis of etiology reveals the fact that 70 per cent. are due to infection by drinking water, 13 per cent. to milk, and 3½ per cent. to other foods; this leaves a balance of less than 15 per cent. to be accounted for by other agencies. It will be observed that the statistics are in flat contradiction to the recent statement of Koch's, that the majority of typhoid epidemics are due to contact infection. A large number of charts, maps, and tables are produced to support the theory of infection by water, but it cannot be said that they are convincing. The city of Berlin, particularly, presents a very elaborate and ingenious chart by which at a glance it is possible to compare the improvement in the water supply with the mortality from typhoid for every year since 1870. A decrease in the death rate from typhoid is undeniably evident, but it does not show the least tendency to run parallel with the improvement in the water supply. Indeed, this problem is so extremely complicated that it cannot profitably be presented in the form of charts. To mention only one very serious disturbing factor, there is the enormous difference in the mortality of the various typhoid epidemics, which may entirely vitiate the records by elevating the mortality curve, whereas a corresponding infection curve would actually fall. Unfortunately it is only very recently that the reporting of typhoid cases has become compulsory, so that an infection curve cannot be constructed except for the last few years. Another disturbing element is the fact that other hygienic improvements have run parallel with the betterment of the water supply, so that it becomes impossible to determine the part played by each factor in producing the decreased mortality. This is especially true of canalization, which has been known to decrease the typhoid mortality, ever since the fifties in the last century, when it was introduced in conformance with Pettenkofer's theory of the connection between "Grundwasser" and typhoid epidemics. That some such connection, the rationale of which is still entirely obscure, does in reality exist, is evidenced by charts affording a comparison of the water level with the mortality from typhoid during the last sixty years in Hamburg and the last thirty years in München, it is almost invariably found that the two curves run in opposite directions, in other words, there is an imperfect inverse proportion between the two sets of figures for each year. Finally, infection by contact is represented in a chart in which the number of direct infections, involving especially the nursing staff and the doctors, of many of the large German hospitals are compared. In the Hamburg hospital, in which the conditions are apparently ideal, these infections number only 1 per cent., whereas in the Prussian military hospitals they run as high as 6 per cent.

Our knowledge concerning the epidemiology of cholera is noticeably more complete and satisfactory than in the case of typhoid. A large revolving atlas is the centerpiece of this department, and on it are traced the courses of the five great cholera epidemics of the century, all of which had their point of departure in India, except that of 1883, which originated in Egypt. The rôle of water as the chief mediator in cholera epidemics is illustrated by maps of the Hamburg epidemic of 1892, and of the epidemic of 1850 in Barth; those parts of the cities supplied by uncontaminated water seem to be protected as though by an impassable barrier from the

invasion of the disease. Hamburg and Budapest, both of which cities have had sad experience with cholera, furnish certain new and interesting data regarding mortality and distribution. The mortality is generally as high as 50 per cent., the disease proving most fatal to infants of one year, after which age the curve gradually falls to the minimum, at ten years, and rises again after twenty years. Most subject to the disease are hired girls and day laborers, presumably because in these professions the chances of water infection are multiplied.

The next room is devoted to puerperal fever and to the various skin diseases. The mortality from puerperal fever fell rapidly in the cities about 1870, and now ranges between 0.5 and 1 per cent.; in the country districts it has fallen very much more gradually, and is still as high as 2 per cent. All the infectious skin diseases, including the rarest forms, are illustrated by very fine casts. Prof. Pick, of Prague, contributes cultures on various media and at successive stages of growth, of *Microsporon furfur, Microphyton tonsurans,* and other micro-organisms.

Following upon this, one enters a room devoted to malaria and to smallpox. One of the triumphs of the exposition is the masterly demonstration of the tremendous protective value of vaccination. The mortality of the Prussian army, which was subjected to vaccination from the year 1834 on, whereas vaccination was made obligatory for the civil population only forty years later, is in itself a demonstration. From 1825 to 1834, the mortality per 10,000 men, was 1 to 8; 1835 to 1870, 0-1; 1871, 2½; 1872, 3, the temporary increase being traceable to the severe epidemic then raging among the civil population; 1876-1897, 0 (except 1885, ⅓); during the same period, the mortality among the civil population was enormously greater: 1847 to 1870, 2 to 6; 1870, 24; 1871, 26; 1873, 4; 1874, 1, and since that time less than 1. The cities of Hamburg, Prague, Vienna, Dresden and Berlin present similar statistics. Comparison of the mortality in the various countries of Europe shows how favored are those with compulsory vaccination. In Germany, Sweden, and Denmark, the mortality never comes near 100 per 1,000,000 inhabitants; in France it is 150, Italy 210, Spain 640, Russia 840. The smallpox epidemic in Chemnitz of 1870-71 affords another unanswerable argument which is sufficient to shatter all the antivaccination leagues in existence. Eighty-nine per cent. of the population were vaccinated, 9 per cent. had previously had the pox; of these, 1 per cent. caught the disease, and of those infected less than 1 per cent. died; of the unvaccinated, 9 per cent. perished. Very instructive are 12 Petri plates, showing the richness of glycerin-vaccine in bacteria, at successive periods. The plates of the first day are remarkably rich in germs, but the vaccine, owing to the presence of bactericidal elements, gradually purifies itself, a process which is evidenced by the progressive diminution of the number of colonies in the plates. At the end of two weeks, only about 10 per cent. of the original number of colonies remains. After a month, the lymph is almost sterile, the pathogenic forms have all died off, and only a few harmless sarcinæ and yeasts remain. Yet the protective value of the vaccine is in nowise impaired after one month. The methods of securing lymph, instrument sets, casts, historical documents and plates, lend extraordinary interest to this collection.

The pathology of malaria is illustrated by microphotographs of the life stages of the plasmodium as seen in Romanowsky's preparations, contributed by Prof. Ruge, of Kiel. Italy contributes an exhibit of the material used to guard against the bites of *Anopheles*—gloves, helmets with a gauze curtain for the face, and so forth. There is a small model house, in which every opening, even the chimney, is protected by a fine wire screen. The efficacy of these measures is borne out by very careful tables compiled by the Italian Grassi, in which the comparative immunity of individuals in protected houses is in marked contrast to the deplorable condition of their unenlightened neighbors. These facts are the more interesting, inasmuch as the Italians regard the American idea, of exterminating the mosquito by abolishing marsh lands as chimerical. At all events, they have demonstrated that with their methods malaria is distinctly an avoidable disease even in the Italian Campagna.

Lepra and the Plague are very profusely illustrated by casts, pathological specimens, plates, bacteriological preparations, and historic documents.

Finally comes the section devoted to venereal diseases. Here the material is so rich that it is impossible to give more than a glance at the most interesting features. It appears that gonorrhea is the most frequent of the venereal diseases, and preponderates in the male sex; syphilis, on the other hand, preponderates in women up to the age of forty years. The distribution is as follows: Prostitutes are in the majority, and of this class especially the unlicensed; a close second are the students. It is remarkable, and a tribute to the efficacy of the medical inspection exercised over the brothels frequented by the military, that the soldiers in Germany contribute a *smaller* quota than any other class of the population. By far the largest percentage of cases occurs in the large towns, especially Berlin, the small towns are comparatively free, while the country districts are almost immune.

The reader may now consider that he has traversed most of the alcoves of the building; but he would greatly err, if he thought that he had almost finished with the exposition. There still remain the microscopical and bacteriological exhibits, and the contributions of the great public and private serum institutes of Europe. Finally, one large room is devoted to the subject of disinfection. The great central hall is occupied almost entirely by row upon row of microscopes, furnished by Leitz, under each of which is some interesting preparation. Ruge, of Kiel, contributes a full series of malarial preparations, including the cysts in the stomach wall of the mosquito. All of the skin parasites are represented in a series from Prague. All of the pathogenic micro-organisms, and many interesting pathological specimens find their place in this extraordinary collection. The Pasteur Institute has made an effort which entitles it to a special alcove. Binot, the chief, gave his personal attention to the preparation of this exhibit, and has sent a superb collection of bacterial cultures, killed by formalin, so as to preserve them in their typical condition. The cultures which are presented either in specially constructed (Roux) flasks, or in test tubes, are in excellent condition, and include every form of even distant interest to the physician. Very fine is the collection of potato cultures, with the characteristic discolorations produced. Among the other preparations from the Institute is a rabbit, with the cord prepared, for the securing of antirabic vaccine.

Finally, one cannot forbear to mention the very interesting collection of historical documents, of medals and plates, of proclamations regarding the infectious diseases, of reproductions of the contributions of art which bear upon disease, most of which come from Nuremberg or Paris.

All in all, although it has been possible to indicate only in broad outlines, the general trend of the exposition, its importance as an element in the popularization of the results of modern science cannot but be mani-

fest. The scope of its direct influence may be measured by the fact that no fewer than 100,000 individuals have visited it. How many more it indirectly and distantly enlightens no man can estimate. And enlightenment of the laity is the greatest boon which can come to the medical profession, just as it will prove the severest blow to the charlatans.

ELASTIC LIGATURE IN INTESTINAL ANASTOMOSIS.

To the Editor of the MEDICAL NEWS:

DEAR SIR: My attention has been called to Dr. Maury's article on the elastic ligature in intestinal anastomosis. I wish to take notice of one or two points.

The bands of mucous membrane which were found in some of his specimens were due to a fault in technic. I myself found the same condition in my first case of operation on the human subject. The anastomosis in that case was made, according to Lücke's advice, with the coil of intestine first presenting. This chanced to be within three feet of the ileocecal valve and the patient died on the fifteenth day of starvation.

The anastomosis was found to be perfect, except that a narrow bridge of mucous membrane crossed the orifice on the gastric side. The explanation is simple: The folds of mucous membrane rise in ridges, and if the needle is passed in too horizontally these ridges will be perforated and strips of the mucous membrane will be left outside of the ligature. This accident may be avoided by care in passing the needle. It should be entered at a right angle to the long axis of the gut and made to traverse its cavity without transfixing the mucous membrane. In actual practice, as tested now in many cases by many surgeons, the simple method which I described in my first article is entirely successful in accomplishing its purpose and is to be preferred to any more complex procedures.

The proposal of Dr. Maury to substitute a ligature of heavy iodized gut for the rubber would be, in my opinion, disastrous, as the constant unremitting elastic contraction of the rubber cord on the tissues is the essential element in securing their certain absorption.

THEODORE A. MCGRAW, M.D.

OUR VIENNA LETTER.

(From Our Special Correspondent.)

VIENNA, Sept. 10.

MEMORIAL EXERCISES OF PROF. KARL GUSSENBAUER—DR. HERMANN KAPOSI'S NEW WORK—DEATH OF DR. JOSEPH MAYDL—EXPOSITION OF INTERNATIONAL HEALTH RESORTS—INSTRUMENT FOR DETECTING ADULTERATED MILK.

PROF. BARON V. EISELSBERG was commissioned by the Academic Senate to deliver the memorial address over the deceased Rector of the Vienna University, Prof. Karl Gussenbauer. He outlined the professor's life, in part, as follows:

Born in 1842, the second son of a village physician (Landchirurg), in Ober Vellach; acquired an elementary and collegiate education in Klagenfurt. Being of modest means, the young student was thrown on his own resources. In 1861 he entered the Vienna University. Despite his straitened circumstances he frequented the lectures of Hyrtl, Brücke, Rokitansky, Skoda, Oppolzer, and other learned professors. In 1867 he had earned his diploma of M.D. Soon after Prof. Brücke appointed young Gussenbauer in his physiological laboratory, where he occupied himself with researches regarding the musculature of the heart valves. Finally he drifted into the Surgical Clinic as a junior. After a year he was examined in practical surgery. Prof. Billroth presided at this examination, and was so enchanted by the exactness of the solution committed to the student's task that he appointed him as one of his assistants. Thus young Gussenbauer rose step by step by earnest endeavor. In the spring of 1875 he was appointed to fill the chair of Professor of Surgery in the Lüttich University, through the influence of Prof. Billroth. In 1886 he became rector of the Prague University; in 1894 he became the successor of his master, Billroth. Two years ago Gussenbauer was elected President of the Wiener Aertze Society, also Rector Magnificus of the Vienna University. Dr. Gussenbauer had an apoplectic stroke on June 19, and succumbed the same day. His scientific attainments are known throughout the world. As an operator he had no peer, and his pupils are scattered throughout the world.

Dr. Hermann Kaposi's new work, "Surgery of Emergencies" is out, and deals abundantly in such cases. It has not been well received owing to the lack of illustrations and its superabundance of diagnosis, pathology, etc., not strictly bearing on the matter at issue.

Prof. Joseph Maydl, Director of the Surgical Clinic at Prague University, died early in August.

The Exposition of International Health Resorts will be held in the Palace of the Hungarian Ministry some time this month. All the prominent health resorts of the Continent will be represented.

The Hungarian Society of Inventors is offering a prize for the invention of an instrument by which every housewife can detect whether her milk has been adulterated or not. The selling price of this instrument must not exceed twenty cents. The amount of the prize is $150, and the closing day of the competition is November 1. Full information for competitors may be had of Dr. Adolf Erdös, Sarajevo, Austro-Hungary.

SOCIETY PROCEEDINGS.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Semi-annual Meeting, held in the Academy of Medicine, New York City, October 13 and 14, 1903.

(Continued from Page 761.)

SECOND DAY—WEDNESDAY, OCTOBER 14, 1903.

New York Hospital for Incipient Tuberculosis.—Dr. Willis G. Macdonald, of Albany, read a paper describing the plans of the New York State Hospital for the treatment of incipient tuberculosis, at present being erected at Raybrook in the Adirondacks. The hospital is 1,639 feet above sea level with a southeasterly exposure, one of its porticos being so situated that by a survey it will have sunlight from 8.30 A.M., until 4:30 P.M. on the shortest day of the year. The appropriation allows of the completion of a hospital that will accommodate 108 patients. During convalescence, however, patients will be allowed to live in tents and their meals can be furnished by the Sanitarium, so that practically there are accommodations for about 160 patients. At first the expense will be about $1,900 per patient. With the later accommodations this will be reduced to about $1,000 per patient. Arrangements are such that when patients are first admitted they are kept in single rooms with 1,800 cubic feet of air space for each patient until the active signs of the disease disappear. After this they are placed in dormitories accommodating three patients with 1,400 cubic feet of air space for each. The housing of the patients has cost less than one-half as much as the Adirondack cot-

tage sanitarium and the economy has been secured by concentration, yet without objectionable limitation of space.

Technic of Operations on the Tongue.—Dr. Dawbarn, of New York City, said that for removal of cancer of the tongue the only proper surgical procedure is the removal of the tongue below the jaw. There is a lymphatic gland at the bifurcation of the carotids, which is usually enlarged and which should be removed. While doing this the surgeon may tie the superficial carotid and save great loss of blood. Many of these cases die from shock and if the meaning of shock be analyzed one of its main elements will be found to be hemorrhage. It is better to tie the superficial carotid artery than to tie the lingual, and there is no danger of secondary hemorrhage. It used to be supposed that the closeness of the branches of this artery prevented the formation of internal clot and so hampered closure of the artery with consequent danger of secondary hemorrhage, but this is now known not to be true.

Septic Pneumonia.—The most important cause of death after operations for the removal of the tongue is septic pneumonia. Usually patients are advised to sit up as soon after the operation as possible. This advice is criminally foolish. The stump of the tongue left is unable properly to control the epiglottis so as to cover the larynx when swallowing, and to have patients sit up is to make it almost inevitable that septic material shall enter the air passages. Dr. Dawbarn prefers to do the operation in a moderate Trendelenburg position. No pillows should be allowed under the head after the operation, and bricks or books should be placed under the feet of the bed. Rectal feeding and the rubbing of warm oil into the skin should be the principal methods of giving nutrition. This protective posture should be maintained for several weeks until the stump of the tongue is clean and the saliva is sweet. Dr. Dawbarn has seen cases in which, even after three weeks, a patient's impatience to sit up has been followed by septic pneumonia, with rise of pulse, of temperature, with distinct rigors, though without much cough. These cases are nearly always fatal.

Hypoglossal Nerve.—Dr. Dawbarn always inserts the hypoglossal nerve, which is readily to be found in Lesser's triangle, into the tongue, in order to encourage the movements of the tongue. This has apparently given better movement, though, of course, it is doubtful whether a motor nerve can be inserted into a muscle and communicate any nervous impulses to the muscle fibers.

Packing and Aristol.—Dr. Dawbarn prefers not to pack the gauze, for this soaks up the discharges rapidly and keeps them present in the mouth, with constant danger to the respiratory passages. The cut edges of the tongue are rubbed with aristol in order to produce an albuminate which will not readily allow the penetration of septic material. A fountain syringe is kept near the patient, who is instructed hourly to use some of the solution of permanganate of potash, which it contains, in order to destroy the fetor. The patient must be warned about keeping his head low while douching the mouth.

Palliative or Radical.—Dr. Dawbarn considers that operations upon the tongue are not merely palliative when done for malignant disease, but are really radical cures in many cases. When the malignant disease is limited to the tongue itself, the outlook is always very hopeful, and with the modern improved technic a permanent cure can be expected in at least one-half of the cases. Now that the well-known power of the X-rays, to influence recurrences of carcinoma, are available after operation it seems not too much to hope that most of these cases will in the very near future be saved from the lingering, awful death to which they were inevitably subject heretofore.

Care of Teeth.—Dr. Bristow, of Brooklyn, said that the most important preliminary for operations upon the tongue is careful cleansing of the teeth. In all cases where he expects to remove the tongue, patients are instructed to use a tooth brush every two hours themselves while the nurse faithfully washes out the mouth twice a day. The well-known unpleasant condition which exists in all cases of cancer within the mouth is thus modified very favorably, and Dr. Bristow is sure that he has better results as a consequence in his practice. Of course, all decayed teeth are removed. Dr. Bristow considers that the posture after operation, suggested by Dr. Dawbarn, has many theoretical advantages, and he intends to make a trial of it. With regard to preliminary tracheotomy, while in principle it seems wrong, since it removes the natural filter of air for the respiratory passages, in these cases, in Dr. Bristow's opinion, it is often indicated. The tracheotomy tube is kept covered with a piece of sterile gauze, on which occasionally some glycerine is dropped in order to keep the air that enters the lungs from being too dry.

Dr. Vander Veer, of Albany, said that the tying of the external carotid seems to him an excellent precaution. Loss of blood is important in two classes of subjects—infants and old people. Old people especially come for these operations and in their cachexia they can afford to lose very little blood.

Dr. Willis Macdonald, of Albany, said that the tying of the external carotid is much easier, even for the novice, than the tying of the lingual, which is usually recommended. Dr. Macdonald considers, however, that the sitting posture after operation is the more favorable, as it enables the patient to get rid of secretions. If he should operate to-day he would have his patient sitting up to-morrow, and have him in a half-sitting posture during the afternoon. He prefers to use the galvanocautery in removing the tongue, not because it prevents hemorrhage, but because the cooked eschar produced protects the surfaces from septic invasion until the granulations throw the burnt portions off. The use of the galvanocaustic knife Dr. Macdonald has learned from Dr. Kocher.

Dr. Gallant said that the most radical operation is the best in cancer of the tongue. Hemorrhage is not so much to be feared as the dangers of careless anesthesia.

Dr. Dawbarn, in closing the discussion, said that his only idea is to have other surgeons try his suggestion as to position after the operation, since he has found it so useful. He does not believe in the use of a galvanocautery, because the eschar produced causes healing to be very slow. He suggests the rubbing in of aristol for the same purpose, however, and the application of this material produces an insoluble albuminate not easily penetrated by microbes. The use of aristol in this way is of special benefit wherever tissues are sure to become infected, or, at least, to be placed in contact with infectious material. When operating upon the appendix, just before opening the abscess cavity, the tissues should be rubbed with this powder and in suprapubic cystotomy the same practice forms an excellent rule. In tracheotomy during diphtheria, just before the trachea is opened, the cut surfaces of the wound, if rubbed with aristol, will usually be protected from many of the complications that are so frequently a source of inconvenience to surgeons during the course of these cases.

Potable Waters.—Dr. E. S. Willard, of Watertown, N. Y., said that the problem of supplying the people with potable waters grows more difficult as the

population increases. This is true for surface as well as deep water. The old idea that water could be purified by rapid flow, aeration and sedimentation was valuable when sources of contamination were few, but this is now inadequate for the protection of water. Dr. Willard suggested that for small towns in the midst of crowded rural population it may be necessary to revert to distillation in order to secure pure water. After all it has been shown that water may be distilled at a cost of about one-eighth cent per gallon. For public water supply, filtration constitutes the best solution of the difficulty. There are two methods, the English slow filtration through sand and the American more rapid filtration with mechanical adjuvants. For this a coagulant is necessary, and there is question always of the bad effect of alum on the system, but no more of this material need be used than can be decomposed by the carbonates in the water, when none of the alum need leave the filtration bed. The ultimate solution of the problem must consist in legislation against the pollution of water supplies by sewage, and besides the material thrown away by the present system is too valuable as fertilizer for conditions to be continued.

Albany Experiences.—Dr. Frederick C. Curtis told the story of slow sand filtration in Albany, which had produced a lower death-rate in the very month of its installation. Since the water has been filtered through sand the death-rate from typhoid fever has never been more than one-half as high as it was before. At least 50 lives per year are saved, so that at the ordinary value of $5,000 per life, as suggested by Dr. Willard, the filtration plant pays for itself every year. There is no stronger evidence of what can be done for the improvement of public water suppy than this Albany experience.

Conservatism in Gynecology.—Dr. John O. Polack, of Brooklyn, gave some details of methods by which, even in the midst of infectious processes, organs can be saved for diseased women. Conservation and not ablation is the principal duty of the gynecologist. This is especially true in the treatment of acute infections, and it is not always necessary to wait for nature to bring about amelioration of conditions before surgical assistance can be rendered. In acute endometritis, curettement followed by the insertion of a 30-grain pencil of iodoform is usually followed by an abscess of complications in the adnexa that constitutes a distinct advance over former methods of treatment in streptococcus infections of the peritoneal cavity. Dry iodoform gauze is packed into the posterior cul-de-sac and allowed to remain for four days. It can be removed painlessly by douching with 50 per cent. hydrogen peroxide solution, the patient being in the Sims position. As little manipulation as possible should be done, as anything that disturbs the lymph thrown out by nature is sure to lead to absorption of infectious material.

Dosage of Digitalis.—Dr. Abraham Jacobi, of New York, mentioned some observations on the desiccation of digitalis leaves in vacuo. After a year 50 per cent. of the active principles in the digitalis have disappeared, though the leaves look green and fresh, retaining all their chlorophyl. Hence the advisability of the suggestion that powdered digitalis should be compressed with milk sugar purer than that ordinarily obtainable, or with starch, and the tablets thus made coated with some varnish that will exclude oxygen. The leaves themselves, however, contain oxygen and this brings about deterioration of the active principles. Every time that the jar is opened in which digitalis is contained a renewed supply of oxygen is obtained. Hence the results of the German observer, who, in six different samples of digitalis found a variation in strength of from one to three. Tinctures varied in strength from one to four, but tinctures of strophanthus were still more variable, varying from one to sixty. It is easy to see under these conditions how a tablespoonful of one preparation may not prove so effective as a teaspoonful of another.

Uniformity of Material.—No preparation of digitalis, even that made in a hospital, can be depended upon absolutely, but only comparatively. It is advisable to make preparations from English digitalis leaves, which are the best immediately after they have been gathered. With regard to the use of digitalis, a knowledge of the preparation is of the first importance. The doses of the drug employed by Dr. Jacobi are small, medium and large. In old age, with hard arteries, small doses modified by the nitrites are employed. An irregular heart, with frequent missed beats, is an indication to stop the use of digitalis. In young persons with acute dilatation indicated by small pulse, cyanosis and an enlarged right heart, demonstrable by percussion to the right of the sternum, teaspoonful doses of the tincture of digitalis, repeated several times at two or three hours' interval, may be employed. In weak hearts, four to five grains of the powdered digitalis may be administered for weeks and months without cumulative effect. To secure any satisfaction, digitalis must be administered up to the obtaining of its physiological effect.

Dispensary Treatment of Tuberculosis.—Dr. John Winters Brannan, of New York, discussed the arrangements now completed for the treatment of New York's poor under the direction of the city dispensaries. This is not the dispensary, but the home treatment of tuberculosis. The dispensaries are for diagnosis and for instruction of the patient. The instructions consist particularly on the danger of contagion, the necessity for fresh air, open windows, life out of doors, on the roof, on the fire-escapes, in the tenement-house districts and in the parks. A trained nurse is to visit the homes of the patients, note their social, sanitary and financial conditions, see to the enforcement of sanitary regulations and make weekly reports. Where nutritious materials for diet are not at hand, these are to be provided through some of the charity organizations. Four quarts of milk and 12 to 15 eggs are considered to be the basis for elementary treatment. Besides, there is to be a provision for the treatment of fever cases, and this is an advantage which the city dispensaries will have over other dispensaries, such as Dr. Otis', in Boston, or the Vanderbilt Clinic in New York, who have taken up this same work. Physicians to succeed in this branch of medicine must have enthusiasm for the work. Dr. Brannan has found Dr. Miller to place in charge of the Bellevue department of this work, but as yet he has been unable to find men for the other hospital clinics. There will be opportunity to treat thousands of cases, where the State Sanitarium will be able to have its influence only on hundreds at most.

Home Treatment of Consumption.—Dr. Miller, who organized the home treatment of tuberculosis at the Vanderbilt Clinic, said that France first developed the subject of the possibilities of successfully treating the outdoor poor for tuberculosis. Otis, in Boston, took the work up in this country of its wonderful usefulness. Of 160 cases treated 49 are now at work, 56 are at home, 23 were sent to the country, 22 are in the hospitals, and 15 are dead. Ninety per cent. of these cases were advanced types of tuberculosis. Yet 51 per cent. of them were improved, that is, gained in weight and felt subjectively better. As a matter of fact, almost as good results can be obtained with

proper care in New York City as in sanitaria in the country.

Symposium on Typhoid Fever.—This constituted the scientific business of the afternoon session of the second day.

Present Views as to Typhoid.—Dr. H. A. Fairbairn, of Brooklyn, discussed the gradual modification of medical ideas as to typhoid fever, until the present medical opinion has come to obtain. It is now recognized as a constitutional disease likely to have local manifestations in the intestines, but not necessarily associated with these, and prone to have other manifestations dependent on a specific bacillus, of which several cognate bacilli produce strikingly similar affections.

Anomalies of Typhoid Fever.—Dr. H. L. Elsner, of Syracuse, N. Y., discussed the anomalies and difficulties of diagnosis in typhoid fever and insisted on how much facility and assurance of diagnosis had been secured by the use of the Widal reaction. There is much less gastric fever in Central New York now than there used to be, and when patients suffer from acute gastric symptoms followed by jaundice, with a continued fever, the Widal reaction usually reveals, on the eight or ninth day, the true diagnosis. Besides the Widal reaction, culture methods are very informing, and are especially helpful in differentiating typhoid from paratyphoid fever.

Dr. Elsner has investigated the character of his typhoid fever cases with regard to the number of spots, and has found that there was no relation between the severity of the fever and the number of spots, while hemorrhages are only supposed to occur rather late in the disease. Dr. Elsner has recently seen a severe hemorrhage on the eleventh day of continuous symptoms, and has even seen death take place from hemorrhage on the ninth day. Of course it may be said that these were walking cases for some time before coming under observation, but the fact remains that the danger from hemorrhage is not precluded during the first two weeks. Abdominal conditions in typhoid are often extremely puzzling. All the symptoms of perforation may occur, yet no perforation may really have taken place. These symptoms then mean a localized peritonitis produced by septic material finding its way through the floor of a deep ulcer.

Effacement of Liver Dulness.—The old diagnostic rule that perforation was to be suspected, or even actually considered to exist whenever there was an effacement of liver dulness is not an absolute diagnostic sign. In cases of severe tympanitis, hepatic dulness may be absent without perforation. The best rule is to turn the patient on the side and percuss in the axillary line from the eighth rib downward. Under these circumstances, if liver dulness is absent, it is not because of a collection of gas in the transverse colon, and the sign has much more significance. Blood-pressure changes seem to be the most important discussed in this regard in recent years. Surgeons know that shock produced by irritation of the peritoneum gives a sudden rise of blood-pressure. In cases of typhoid fever studied with regard to blood-pressure, by means of the Riva-Rocci instrument, this phenomenon of the sudden rise of blood-pressure has been noted.

Posttyphoidal Infection.—It must not be forgotten that the typhoid bacilli may lodge in a particular part and after convalescence produce a septic condition in it. This is especially true of the bile passages, but other infections, as of the marrow of the bones, may take place. A trying diagnostic difficulty is the condition of the urine when there is albuminuria and the physician is not sure as to the typhoid fever or to a preceding chronic nephritis. Where a diffuse chronic parenchymatous nephritis has existed before the typhoid occurred, there is high blood-pressure. Typhoid nephritis itself is followed by lowered blood pressure. Malignant endocarditis occurring during typhoid is extremely difficult to recognize. It may occur, however, from the typhoid bacilli without any other agent. Fortunately there is a rarity of endocarditis in typhoid fever, and few heart lesions can be traced directly to the disease.

Infantile Typhoid.—This is more frequent than has been thought, and its diagnosis is often missed, because physicians do not look for it. Typhoid fever may occur in very young children, even when other members of the family are not affected. The disease is not necessarily severe in children, and Dr. Elsner has seen two cases in which only one rose spot was noted. Diagnosis depends on the Widal reaction, which should always be taken whenever there is a continued fever for which no good reason can be found. Intermittent forms of typhoid fever, of the kind described by Murchison, sometimes occur in children. They were extremely difficult to differentiate from malaria until the introduction of the Widal test. Quinine constituted the test before this. Such conditions as beginning tuberculous meningitis, generalized tuberculosis, and simpler gastro-enteric affections may be difficult of differentiation from typhoid. The presence of leucocytosis usually argues against the existence of typhoid. If there is no enlargement of the spleen, as a rule, some other affection is at work.

Management of Typhoid Fever.—Dr. Egbert LeFevre, of New York, discussed the management of typhoid fever, according to our present knowledge of the disease. It is usually forgotten that the bowel lesion is no longer considered to be the underlying basis of typhoid fever. The old fear of alimentation producing serious reaction in the intestine is based on this oldentime conception. The present infections need feeding, yet typhoid fever patients are usually starved. The indication in typhoid is for a liquid, easily digestible, diet, which is readily absorbed and leaves no solid material to reach the ileocecal region. The food materials should be such as do not readily ferment and do not cause nausea. Milk is not quite a perfect food, and though administered as liquid, it is immediately coagulated in the stomach into more or less hard lumps, which, especially during typhoid fever, are not broken up before they reach the colon. Anyone who examines the stools of typhoid fever patients fed exclusively on milk will soon realize that a considerable amount of hard material reaches the large intestine in these cases. As a matter of fact a mixed diet will not give a greater amount of such residue. Anyone who takes three pints of milk in the day for himself and notes the uncomfortable distention that follows, will not consider it suitable for typhoid fever patients.

Necessary Food Material.—Professor Munk, the distinguished physiologist of Germany, estimated that at least six pints of milk are necessary to supply the proteids indispensable for maintaining health. Eight pints of milk are necessary to supply the other material necessary for metabolism. Patients cannot take this much and consequently there is a loss of strength and a falling off of vital resistance, which allows relapses to occur. So-called posttyphoid sepsis, is usually really starvation due to the maintenance of an exclusively milk diet. English army surgeons studying the question of the occurrence of thrombosis in typhoid fever, found that the coagulability of typhoid fever is greatly increased during the beginning of the first week and greatly diminished toward the end. This increase of coagulability which predisposes to thrombosis is due to the calcium salts absorbed from the milk and this unfortunate tendency is increased by the addition of lime

water to the milk in order to make it less liable to produce tympanites.

Diet in Typhoid.—Nothing should be given except what may pass through a fine wire sieve. An abundant supply of water should be allowed to the patient and the physician should see for himself that it is taken. At times carbonic water may be employed, the excess of gas being allowed to escape. Acidulated waters are sometimes grateful, but plain water is best. Of milk two or three pints a day should be given, flavored with coffee or cocoa, or tea as the patient wishes. Milk that has been aerated by being shaken up is more tasty and more digestible. Occasionally it may be taken in the form of junket, or may be mixed with stale grated bread, or with such of the farinaceous baby-foods as are grateful to the patient. Oatmeal, rice, wheat, sago and other cereals make a good variety in the diet, and the old prejudice as to their causing fermentation has now disappeared. As a matter of fact, in such a mixed diet there is less distention than when pure milk alone is used.

Use of Gelatine.—The value of gelatine is underestimated. It lessens nitrogenous waste and protects the proteids of the body. In the form of jelly it is very palatable. Cold jelly bouillon is very grateful to patients. Gelatine should be used whenever there is danger of hemorrhage. A half ounce to an ounce of gelatine should be administered every couple of hours when hemorrhage threatens and it will control bleeding better than ergot or the astringents.

Catharsis.—It is important to remove the residue as well as not to permit the ingestion of irritating materials. The ordinary cathartics are apt to act as disinfectants also. The most important materials in this regard are salines and castor oil. In children olive oil may be employed. Salines may be used in a variety of preparations. Phosphate of soda, or magnesium sulphate, or, if the patients have been accustomed to saline waters, these may be continued, as it is easier to regulate the dosage. Castor oil should be given in elastic capsules. If they have a tendency to produce griping, three to four drops of chloroform should be added. As an antifermentative five grains of salicylic acid may be added to the castor oil.

Antipyretics.—Cold bathing is important, but if patient is very sensitive to the cold the temperature may be gradually reduced, the patient being put in when the water is quite warm. The prejudice against the coal-tar antipyretics came from the abuse of them on their first introduction. Every physician of experience in typhoid realizes their value now in helping to control the temperature. Quinine acts as an antipyretic, not by affecting the heat regulating apparatus, but by lessening proteid metabolism. It should be given in the massive doses, 30 to 40 grains, but after an initial dose of 15 grains, five to 10 grains are sufficient. Quinine is especially useful in posttyphoidal sepsis.

The Ithaca Epidemic.—Dr. L. Colville, of Ithaca, N. Y., gave the details of the epidemic of typhoid fever at Ithaca, N. Y., at the beginning of the present year. So far it has not been definitely determined just what was the source of the infection. Along Six-mile Creek, the source of the city water supply, there are two towns and farms, the water-closets of which are not very far from the stream. Besides this, not far from the pumping station an Italian colony of laborers was camped along the bank of some small streams that empty into the water supply. Some of these sources are supposed to be accountable for the epidemic.

Anomalies of the Disease.—All of the cases had the throatmarks of typhoid fever, the dull angry pharynx with the pillars of the fauces and tonsils involved. The usual intestinal condition was constipation. There were many respiratory complications, but this seems to have been due to overcrowding. The death-rate was rather high, especially among the students. Among the students 131 cases occurred in the city, and 197 out of the city. Altogether 30 of them died, a mortality of 9.1 per cent. Of the townspeople, 42 died, constituting 6.6 per cent. mortality. In the city hospital the mortality was less than 7 per cent. The average date of death was the twentieth day. A curious element of the statistics was the fact that no plumber or sewer employee suffered from typhoid fever.

Water Source of the Disease.—Of all those who drank other than city water no one contracted the disease. City water was used for cleansing and bathing purposes, but this did not give rise to any cases of the disease. The milk supply did not become infected at any time. A very interesting fact was the immunity of physicians and nurses to the disease. One physician acquired typhoid fever and unfortunately died from it.

Lessons of the Epidemic.—Dr. George A. Soper, of the State Department of Health, said that the State Board of Health had not yet determined the source of the epidemic. The Widal test was made on the blood of every person known to have been ill for six months before the epidemic, yet without definite information. The town had ample notice of the danger. One hundred privies were known to exist along Six-mile Creek and 17 privies were contaminating the water supply in the town. Not much could be done by the local Board of Health and 1,000 cases had occurred before the State Health Commissioner was called upon. Then it was found that physicians were not reporting their cases promptly. The principal lessons of the epidemic are that the local Board of Health should have more power than is now the custom and should exercise it. It is strange to find such an epidemic in a University town, but it must not be forgotten that at the universities no courses in practical hygiene are given and sanitary science is not taught. There is need of change in this matter and the introduction of such courses will gradually bring the public to the proper realization of the dangers run and the precautions necessary in times of typhoid fever.

Epidemiology of Typhoid Fever.—Dr. Cyrus W. Field, 2d, of New York, said that the impression gaining ground at present in bacteriology is that typhoid bacilli cling to life much more tenaciously than has been thought heretofore. At Chickamauga, living typhoid bacilli were found in the camp water-closets two years after the soldiers had evacuated the encampment. Typhoid bacilli have been known to live in soil for sixty-five days and a recent observer has even found them alive twenty-five days after being ground into dust and subjected to drying in the air. Needless to say if typhoid fever bacilli get into food materials they grow very rapidly. This is especially true as regards milk.

Shellfish and Typhoid.—Typhoid bacilli have recently been found to grow very rapidly in oysters and other shellfish whenever the resistive vitality of the fish is much lowered. On the other hand, typhoid bacilli exposed to sea water with a specific gravity of 1,017 are killed in a few hours. Freezing does not destroy the bacilli, so that the preservation of shellfish on ice is no absolute protection. It must not be forgotten that ice-cream is a carrier of infection for typhoid fever, notwithstanding the freezing process. Long-continued existence in a frozen state seems to deprive the bacilli of life.

Dr. Heffron, of Syracuse, in discussing typhoid fever, said that the epidemic of Ithaca, though one hesitates to say it, may prove a blessing. Watersheds must be patrolled and the sources of water supplies, such as lakes and rivers, preserved from pollution. If every

case of typhoid were traced to its origin in a few years there would be no typhoid fever left. Dr. Heffron, after having had an experience personally with typhoid, is opposed to the everlasting milk diet. He has had excellent results with acetozone as an intestinal disinfectant.

Dr. Abraham Jacobi said that it must not be forgotten that the urine of typhoid fever patients remains infected for many weeks after convalescence has set in. During this time nephritis may occur unless great care is taken.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twenty-ninth Annual Meeting, held at Memphis, Tenn., Oct. 7, 8 and 9, 1903.

The President, Dr. Edwin Walker, of Evansville, Ind., in the Chair.

President's Address.—The President urged the necessity of careful, accurate observation in the study of cases, and the correct diagnosis of each one as an indispensable requisite to advancement in the profession. Experience was valuable in proportion as it was founded on accurate observation. The practitioner must fit his methods to his needs. When remote from large centers he must evolve his own system. If his practice is large, an assistant or competent nurse should be obtained. It was his belief that in the near future the trained nurse would become a clinical assistant, relieving the busy doctor of many details, such as testing urine, stomach contents, and other minor manipulations. Physicians learned to save time and to apply it to the essentials, leaving the details to others.

The Decision to Operate.—Dr. A. M. Cartledge, of Louisville, Ky., in the Address in Surgery, impressed upon both physicians and surgeons the eternal fitness of time and opportunity as they related to surgical operations. The first great responsibility in deciding that an operation should be performed rested with the physician, who was keenly alive to the alarm and perturbation his announcement would cause to both patient and friends. Therefore, he should be prepared to make such announcement with the greatest clearness and candor, mingled with as much encouragement and hope as the condition would justify. He sounded a note of warning against the too common practice of treating surgical operations as trivial affairs, free from danger and pain. He called especial attention to the decision to operate in affections confronting the physician almost daily, and to the significance of time and opportunity. In cancer of the uterus, if seen early, the surgeon should advise complete removal of the organ at once, yet promise very little as to return of the disease, for there was no chapter in the history of malignant disease as gloomy as this. Cancer of the breast is more hopeful, but hopeless enough. In cancer of the maxillary bones he believed it was sound practice to advise operation in almost every case affecting the lower jaw, and to refuse operation in almost very case involving the superior maxilla. Next to the uterus, he did not know of a situation in the body where malignant disease was surer to return after operation than the superior maxilla. He was convinced that cancer of the alimentary canal was slower of growth and extension than was generally supposed, and that early operations promised much more than was usually accredited to them. Surgeons should be slow to decide upon operation in chronic brain troubles, such as suspected tumors. They should decide quickly upon operation in cases of compression and infections within the cranial cavity. Time was of more importance in acute peritoneal infections than in lesions elsewhere in the body. The happiest time to operate upon intestinal obstruction was when the physician suspected the patient had one of the organic forms of this condition.

Relation of the Medical Department of the United States Army to the Profession.—Major W. C. Borden, U. S. Army, Washington, D. C., delivered an address on this subject. He stated that in the past the relationship between the officers of the medical department of the army and the profession at large had always been close, and thereby the officers of the medical department had kept in touch with the great advances in medicine and surgery, which the civil practitioner in time of peace had the greatest opportunity to practice.

The Prevention of Heart Disease.—This was the subject of the address in Medicine delivered by Dr. Robert H. Babcock, of Chicago. The speaker discussed in what manner the principles of prevention could be applied to various heart affections. He regarded the removal of all chronically diseased tonsils as of the utmost importance in all persons who had had once an attack of inflammatory rheumatism, whether the heart had been damaged or not. If infection could be prevented, cardiac inflammation could likewise be obviated. This statement applied to other affections than rheumatism. He then mentioned syphilis and gonorrhea, saying that these diseases sometimes attacked the cardiac structures. Pneumonia, chorea, scarlatina, is sometimes accompanied or followed by acute or chronic endocardial mischief; while influenza or diphtheria might attack the myocardium in an inflammatory way, so as to seriously impair its integrity. Until we could prevent such infections, we could not guard against the cardiac structures being attacked. The author discussed chronic myocardial diseases, the toxic influence of syphilis, alcohol and chronic lead poisoning, fatty heart, and particularly cardiac overstrain, as it is observed in the young, and sometimes in the middle-aged, and apparently healthy, as the result of excessive physical exertion, and mentioned typical examples of this kind.

The Importance of Medical Organization in Securing and Enforcing Medical Laws.—Dr. T. J. Happel, of Trenton, Tenn., in discussing this subject, stated that when the American Medical Association had drawn into its folds the members of the medical profession who should legally belong to it, there would be no trouble to secure a department of public health, with an officer at its head as a member of the President's Cabinet; and reciprocity in medical licensure would no longer be an idle dream. Uniform medical laws could be passed in all the States of the Union, with only such variations as might be demanded by the Constitutions or laws of the different States; and then all the requirements could be made so nearly alike for license to practice medicine, and the examinations made upon such an equal basis, that a license issued in one State would be accepted in another without question.

Medical Organization.—Dr. J. N. MacCormack, of Bowling Green, Ky., made some remarks on this subject, and among other things he stated that it was only a question of time when every State medical society in the Union would adopt the plan of reorganization of the American Medical Association. The results thus far accomplished were very encouraging. Within the last two years progress had been very rapid in many of the States. For instance, in Michigan the membership of the State Medical Society within one or two years had increased from 400 to almost 2,100 members; in Kentucky from 300 and some odd up to nearly 1,600. A marked increase had been observed in the membership of other State medical societies. He urged physicians to establish pleasant relations with one another, and that if they were at present unpleasant, they

should now make them pleasant. With this idea in view every physician in the United States should begin to do good, and soon personal bickerings would be at an end.

Hypodermatic Use of Mercury in Syphilis.—Dr. S. P. Collings, of Hot Springs, Ark., said mercury was the only drug that was a specific in syphilis; that all others were adjuvants only, and included among the latter were the iodine compounds. Delay in arriving at what was probably the proper standing of the hypodermatic use of mercury in syphilis had been caused by the multiplicity of preparations of mercury that had been used, the methods employed in their administrations, and to the fact that there had been so many overzealous advocates claiming quick cures for the method, which had brought it into disrepute. The cases to be selected for the use of mercury should be largely those in which there was an existing necessity for the patient to be brought rapidly under the influence of it. The question as to its use as a routine treatment should be decided by the attending physician from time to time.

Specialism in Its Modern Significance.—Dr. Albert B. Hale, of Chicago, said that specialism had changed from its earlier condition where tradition sharply defined the work, because the surgeon, the obstetrician, or the internist recognized that no real dividing line separated their activities. The young man of to-day was so well educated by his college and even by his post-graduate work, that he was able to practice in many departments formerly exclusively held by specialists. But modern specialism meant time to devote to the delicate technic of diagnosis and of treatment. If these functions were not recognized for the patient's good, but if every practitioner accepted cases on which to practice, even when not equipped for it, the advance of true specialism was discouraged, and prevented the profession from attaining that culture which characterized our European colleagues.

The Early Diagnosis of Mental Diseases.—Dr. C. B. Burr, of Flint, Mich., defined insanity as "a prolonged departure from the individual's normal standard of thinking, feeling, and acting," saying that this would for working purposes be found sufficient. A comprehensive definition would include mental defect of whatever cause and mental perturbation of whatever degree. Any or all of the elemental processes of sensation, perception, ideation, reasoning, judgment, memory, may be impaired in insanity. In the paper the nature and degree of impairment of these elemental processes and of emotion and volition, in different forms of insanity, were touched upon. Subjects discussed at greater length were the distinction between confirmed inebriety and true insanity of alcoholic origin, the differential diagnosis of alcoholic pseudoparesis and paretic dementia, certain phases of hysteria, and the diagnostic difficulties pertaining to paranoia and recurrent mania. Neurasthenia was a euphemism often employed to obviate the necessity of plain speaking, or might be used erroneously to explain the symptoms in the early stages of an organic malady. The self-deception on the part of the physician or his inaccuracy in diagnosis led to improper methods of management, and the prescription of travel often made for such patients was deplored, and incidentally hospital care for neurasthenic cases was advised.

Therapeutic Value of Heat and Cold Applied to the Spinal Cord.—Dr. W. Frank Glenn, of Nashville, Tenn., in discussing this subject, drew the following conclusions: (1) Nothing should ever be put into the stomach except such substances as form a component structure of the body. (2) If this rule were rigidly adhered to, there should be no digestive disturbances, and all would have normal blood. (3) Since the blood was the life, when the blood had its structural elements normal and every cell was receiving its proper supply, no more, no less, disease could not exist. (4) Since it was known that the amount of blood in any part was controlled by the action of the vasomotor centers of the spinal cord, and the sympathetic ganglia in close proximity to the cord, when these centers were performing their functions properly, the blood circulation must be normal and no disease could exist. (5) When there existed any disease causing an increase of blood in the capillaries of an organ, the application of heat over the vasomotor centers presiding over that organ caused almost at once a normal flow of blood in them, and consequently a normal circulation in the organ affected. (6) When there existed any disease which lessened the normal amount of blood in any organ, then the application of ice over the vasomotor centers presiding over that organ would cause a normal amount of blood to flow to that organ, resulting at once in a normal circulation and a consequent subsidence of the symptoms of the disease.

Brain-strain Dyspepsia.—Dr. C. H. Hughes, of St. Louis, called attention to conditions that were altogether too much overlooked in dyspepsia, as encountered among the brain-strain and brain-weary and worn men and women of affairs, connected with defective innervation in the stomach.

What a General Practitioner Should Do in the Early Stages of Mental Disease.—Dr. Brooks F. Beebe, of Cincinnati, said the practitioner should teach people that if they would live happy and useful lives, and produce healthy and happy progeny, they must not eat too much of the fruit that was sour. The great progress in recent years in the treatment of mental diseases was a result of the recognition that psychology rested alone on physiological bases, and metaphysical theories no longer had weight. In the treatment of mental diseases the intelligent physician should proceed in the same way as in treating other affections.

Masked Epilepsy.—Dr. W. B. Fletcher, of Indianapolis, said that this disease was usually unrecognized until it had progressed to a degree dangerous alike to the patient and those about him. Masked epilepsy presented one of the most intricate medicolegal questions. Little was known of the pathology. Among adults it was usually caused by alcoholic, syphilitic and autotoxic conditions. Treatment should begin with the mildest symptoms, and war be waged on the vicious constitutional tendencies.

Infantile Paralysis: Its Nature and Treatment.—Dr. Albert E. Sterne, of Indianapolis, said this was essentially an infectious disease, and was regarded by some authors as the purest form of a true nerve tissue process. Unless epidemic, diagnosis was almost impossible before there was evidence of spinal involvement manifested. When the child first became ill, almost all symptoms pointed to an affection of the stomach, usually a couple of days before paralysis set in. If evidences of profound nervous involvement were found, associated with vomiting, it should serve as a diagnostic and prognostic warning. Practitioners were confronted with a problem of a deep-seated inflammation in the spinal cord itself. Counter-irritation should be used along the spine; antiphlogistic applications, and the constant use of dry cold to the vertebral column. Perfect rest should be maintained. No specific was known to the profession. After paralysis had set in, the nerve cells themselves were the seat of inflammation. As soon as possible, electric stimulation should be applied to the paralyzed members. All measures were poor substitutes for the vigorous measures recommended in the initial stage. Results could then be attained which

were incomparably superior to the very best secured by any method later on.

Some Recent Investigations upon the Action and Therapeutical Value of Currents of High Potential and Frequency.—Dr. Curran Pope, of Louisville, Ky., mentioned a case of neurasthenia in which an abscess developed in the left thumb. The pus was evacuated, and a high frequency current applied for five minutes. There was immediate relief from pain, and no pus was found afterward. In another case with symptoms of formation of bone felon, with prevention as a result. These experiences had been repeated in many instances. The author was satisfied that the high frequency current had a germicidal effect on pus and pus-forming bacteria, and that this was in proportion to the presence of the ultra-violet ray. The author was now experimenting and gathering clinical data with reference to the direct action of the violet rays alone.

Local Lesions and Treatment of Amebic Dysentery.—Dr. James P. Tuttle, of New York, said there could no longer be any doubt that there was a type of dysentery due to infection by the *Amœba dysenterica.* Whether catarrhal, bacillary or amebic, dysentery had its origin in the large intestine. In his investigations he had found that the ulcerative lesions decreased as we ascended upward from the rectum into the sigmoid, and in several instances entirely disappeared at the length of the sigmoidoscope. Ulceration of the rectum was always present in cases of chronic dysentery in soldiers returning from the Philippines. Complications might be summed up in abscess of the liver and stricture of the bowel. As to treatment, the experiment of flushing the bowel with cold water was suggested, and repeated experiments had proved its worth. Flushings were given three or four times a day from a fountain syringe. In winter water direct from a hydrant was used; in summer a little ice was introduced. At least one douche a day was continued for eight weeks. Treatment of rectal ulcers should be carried on according to requirements. A summary of the author's experience was as follows: Total cases treated, 63; cured, 61; disappeared, 1; abscess of liver, 1; died, none.

Neuroses of the Stomach and Intestines.—Dr. Frank P. Norbury, of Jacksonville, Ill., read this paper. In reviewing the principal neuroses of the stomach and intestines, it was evident that the background of all was the neuropathic constitution. In treatment one should first consider this basis, and while doubtless, as investigations went on in the study of these diseases, a more definite pathology would be outlined, yet one would always have to consider the predisposition as a primary and important etiological factor. In treatment, it was necessary to follow the methods which best combat this feature, and which best subserve the observation of the case and the carrying out of the details of treatment. The rest treatment met these indications, and how well depended upon the thoroughness with which it was practiced. When each case was studied with consideration of all etiological factors, and as carefully watched during the course of treatment, the results would be highly satisfactory.

Castor Oil in the Treatment of Typhoid Fever.—Dr. C. C. Bass, of Columbia, Miss., reported last year 32 cases of this disease treated with castor oil. This year he reported 47 additional cases, which he and his associate had treated in the same way.

Scarlet Fever.—Dr. J. M. Batten, of Huntington, Pa., gave the history, symptoms, duration, incubation and variations in type of this disease.

Infantile Spinal Paralysis.—Dr. Alexander C. Wiener, of Chicago, said that infantile paralysis as a result of acute poliomyelitis, improved spontaneously in the first four months after the attack. From the establishment of the paralysis up to nine months the use of electricity, baths, massage and gymnastics was indicated. It inhibited the fatty degeneration of those muscles which were only slightly damaged and which by judicious stimulation usually recovered their tone. After nine months had elapsed, any therapeutic attempt was necessarily futile. Good functional results were obtained by a brace which would put the paretic muscles of the leg at an advantage over the stronger opponents. The permanent restoration of the balance of two opposing muscle groups might be effected in two ways: (1) By implantation of the paralyzed tendon into a normal one of similar function. This method was called the ascending or passive tendon grafting, as used by Goldthwaite. (2) Splitting off a part of the belly of a healthy muscle with its tendon and connecting it with the tendon of a useless muscle. This method created two new muscular individuals, so to speak, and therefore was called the active or descending tendon grafting. The greatest usefulness of tendon grafting would be found in the frequent cases of infantile cerebral paralysis.

Dr. A. C. Croftan, of Chicago, gave a summary of the recent investigations into the cause and treatment of diabetes.

Leucemia.—Dr. Wm. Britt Burns, of Memphis, Tenn., read a paper with this title, and exhibited a patient. He discussed the two recognized varieties of the disease; also the etiology, morbid anatomy and treatment.

Syphilitic Manifestations in the Nose and Pharynx.—Dr. Paul Turner Vaughan, of Hot Springs, Ark., said that in looking over the clinical histories of 500 cases of nose and throat syphilis, he did not find a single instance in which the primary sore was situated in either of these localities. Erythema, mucous patches, ulcerations and gummata might at various times be found in the nose of the syphilitic patient. Primary sores of the pharynx were not met with in Hot Springs as often as one would suppose, for among his cases of nose and throat syphilis he only found 4 cases in which the sore was situated in the pharynx. As to treatment of these conditions, attention should be paid to both the local manifestations and the constitutional cause. The primary sore should be cleansed with some antiseptic wash and dusted with some mild powder. Calomel is about the best he has found. Caustics locally applied in this stage did much harm.

The Principles of Diagnosis of Medical Malingering.—Dr. John Punton, of Kansas City, Mo., discussed this subject in a very exhaustive and interesting paper. He narrated the case of a man, aged twenty-two years, who, while leaning in the door of a freight car, claimed to have been struck on the back of the head and knocked senseless to the ground by the car door, which was supposed to have been fastened to the ceiling with an iron hook and jarred loose by switching. The lawyers for the plaintiff claimed that the man was seriously injured. The case came to trial. After a careful examination, Dr. Punton testified that the man was a malingerer, but in spite of his evidence and that of others, the man was awarded a verdict of $35,000 against the railroad company. The railroad company asked for a new trial, which was refused. Subsequently the judge, after hearing damaging testimony against the plaintiff, showing clearly that he was a malingerer, set aside the verdict and granted a new trial. It was developed at this trial that the plaintiff was unmistakably a malingerer. The plaintiff and his mother were now under bonds, waiting for the time to arrive set for their hearing. As to the final outcome,

it remained to be seen, but the speaker hoped that justice would finally prevail.

Cyclical Albuminuria.—Dr. Arthur R. Elliott, of Chicago, gave the clinical histories of two cases of cyclical albuminuria which possessed features of unusual interest. The most interesting feature of the two cases was the direct connection between the cyclical albuminuria and preceding acute infectious nephritis. There existed some doubt as to the exact nature of the original infection in Case I, but whether it was influenza or atypical scarlatina mattered little as far as the renal end product was concerned. In Case II the direct connection with scarlatina was clearly established. In both cases the nephritis was a mixed process attended by little systemic disturbance, slight renal desquamation, and moderate albuminuria. In both instances he thought the lesion was glomerular, a mild cortical involvement. An element of importance from a prognostic standpoint was the existence of chronic nephritis in the immediate ancestry of both of his patients.

(To be Continued.)

NEW YORK STATE MEDICAL ASSOCIATION.

Twentieth Annual Meeting, held at the Academy of Medicine, New York City, October 19, 20, 21, and 22, 1903.

FIRST DAY—MONDAY, OCTOBER 19, 1903.

Presidential Address.—The President's annual address, delivered by Frederic Holme Wiggin, was concerned mainly with recommendations as to incorporation of the American Medical Association by special act of Congress, as certain of the railroads have been, to enable them to do business with more facilities in many States. By resolution the delegates to the next annual meeting of the American Medical Association were instructed to bring this matter up for the consideration of the national body. A resolution favoring the abolition of the office of coroner and declaring it a relic of bygone ages, was also adopted. The dispensary law was endorsed.

SECOND DAY—TUESDAY, OCTOBER 20, 1903.

The first paper of the session was read by Dr. R. Abrahams, of New York, on sea bathing in some forms of skin diseases.

Sea Baths and Chronic Skin Diseases.—Dr. Abraham has found that certain cases of skin diseases intractable by ordinary methods, as chronic eczema and senile pruritus and various forms of pityriasis improve very materially as the result of sea bathing. In order to keep up the good effect produced he has attempted the use of baths in sea water at home, but has not found the same good results. It is evident that the conditions of sea bathing, the exposure to the air, the rubbing with sand, the thorough reaction after the bath, all contribute to the good results obtained, and physicians must bear this in mind for their obstinate cases of skin diseases.

Compound Fractures.—Dr. Bozovsky, of Dunkirk, N. Y., said that the general rule in the treatment of fractures is to take care of the open wound rather than the fracture. A rise of temperature twenty-four hours after the accident usually means an infection. In the child a rise of temperature does not necessarily mean infection. In older patients there may be serious infection and yet no special rise of temperature. The patient's general condition is the best sign as to infection. A brown-coated tongue indicates the presence of a septic process. With regard to the wound, when, as sometimes happens, it is slow to heal, Dr. Bozovsky has found that dusting with a mixture of acetozone and boric acid, 1 in 100 encourages the healing process. In flesh wounds the best dressing is simple sterilized gauze. In old wounds, wet dressing, the gauze being soaked in bichloride solution, 1 in 4,000 is preferable. In phlegmonous conditions unguentum Credé or the silver ointment invented by Credé, gives excellent results, but its expense constitutes a barrier to its use. If the bones are to be sutured, silver wire may be employed for this purpose and may be left in place. Where this cannot be done suturing with catgut or silkworm gut will prove effective. When large fragments without periosteal covering are broken off, they will not unite with the rest of the bones. Small fragments may even be taken out and sterilized and may yield very promptly. This has been shown to occur, even though the fragments are wrongly placed. If there is a gap between the bones, bone fragments may be employed to fill it up, with good results. If there is any doubt about the position of the bones, the X-rays should be employed to determine their position. The simplest dressing is always the best. A plaster cast may be readily applied, is not expensive, molds itself to the limb and may be put on from the beginning of the case, provided the circulation is watched.

Abdominal Stab Wounds.—Dr. F. J. Douglas, of Utica, N. Y., said that the rule in stab wounds of the abdomen now must always be to make an exploratory laparotomy. No matter how small the outside wound there may be severe internal conditions. At times, when the intestines have been penetrated, the patient's general condition does not show the seriousness of his injury. Weakness is no contra-indication to laparotomy. It may be due to internal hemorrhage and this can be stopped at once by tying off the bleeding artery, once the abdomen is opened. If the patient is suffering from shock the use of hot salt solution in the abdomen is the best possible restorative. The abdominal cavity should always be thoroughly cleansed after being opened by the surgeon.

Illustrative Cases.—An Italian, stabbed during a quarrel in the right abdominal region, half way between the umbilicus and the anterior superior spine, suffered from shock and vomiting. The wound on the outside was not more than two inches in length and bled very little and did not seem to indicate any serious internal injury. On opening the abdomen seven perforating wounds of the intestine were found and two in wounds of the descending colon. The wounds were sutured, the abdomen flushed out and two quarts of saline solution left in the abdominal cavity. The patient was very weak for three or four days, but recovered and was able to leave the hospital in about four weeks. His companion, suffering with quite as large an external wound in the left of the umbilicus proved to have no injury of the intestines, though there was an opening into the peritoneum over four inches in length. Another Italian that came under treatment suffering with a stab wound exhibited vomiting and shock, yet laparotomy disclosed no injury to the intestines, though the peritoneum had been opened.

Municipal Milk Supply Regulation.—Dr. George W. Goler, of Rochester, N. Y., gave the experience of Rochester in obtaining a healthy milk supply. He said that in this twentieth century there are schools for everything, except parents. The management of children is the most important factor for the health of the next generation. Provision of impure milk is worse than any other form of neglect for children. Adults may take milk from dirty barnyards and yet survive. There may even remain the false notion that Pasteurization purifies milk. Infants do not thrive on milk that contains more than 100,000 bacteria to the cubic milli-

meter, and it would be still better if the number were under 10,000. In Rochester it has been found that insistence upon the bacterial standard, though this has been considered impractical by milk inspectors in neighboring towns, constitutes the most effective way of regulating the milk supply.

Improvement in Conditions.—Before 1900 the average number of bacteria found in the cubic millimeter of Rochester milk was over 800,000. Twenty-six samples contained over 5,000,000 bacteria to the cubic millimeter. During the five years, from 1897 to 1902, 1,600 less deaths took place.

Comparative Child Mortality.—The death-rate of children under five years of age, in Rochester, as compared with the mortality at the same ages in other cities of New York State shows how much has been accomplished. In New York City 37 per cent. of the total mortality is of infants under five years of age. In Brooklyn, 36 per cent. In Long Island City about 30 per cent. In Yonkers, 26 per cent.; in Albany, 22 per cent.; in Troy, 23 per cent.; while in Rochester only 19 per cent. of the total mortality is of children under five years of age. These figures represent a decline of mortality of nearly 10 per cent. during the years when milk inspection has been insisted upon. This large reduction in the mortality of children has been brought about at a cost of less than $900 per year. The two important elements in the crusade against bad milk have been direct stable inspection of farms and dairy yards, and the insistence upon a bacterial standard as the criterion for purity of milk.

Benefits of Inspection.—Dr. De Lancey Rochester, of Buffalo, said that the experience in Buffalo showed the necessity for direct inspection of milk supplies. The insistence upon a bacterial standard was found impossible. A committee of physicians attempted the experiment of certifying to the quality of milk from sources which they kept under inspection. It was found absolutely necessary, however, to keep up unexpected visits to farms or the precautions required would not be complied with. Dr. Rochester remarked that Dr. Goler is to be complimented on the state of affairs produced in Rochester.

Medium-sized Towns and Sanitation.—Dr. James J. Walsh, of New York, said that the political machinery of large towns is so hard to move that sanitary measures are often kept in abeyance. The country must look to towns of medium size for good examples in this matter, and Albany's experience in ridding itself of typhoid fever and Lawrence's good results from sand filtration are on a par with the present report from Rochester with regard to the improvement of the municipal milk supply. Nothing gives greater hope for the improvement of the general health of our cities than care for such sanitary conditions. There are 15,000 fewer little graves in the city of Chicago as the result of the summer heats of this year than there would have been if the death-rate of 1895 continued to the present time. Precious lives can be saved in very large numbers without very much expense, as Dr. Goler's experience shows, and no town or village is too small to profit by Rochester's experience. Rochester deserves the highest compliment that can be bestowed upon it, for its good work in this matter, not only because of the actual saving of life, but especially because of the inevitable good effect that its example must have.

Long Preservation of Milk.—Dr. Henry O. Marcy, of Boston, Mass., said that some years ago he was one of five physicians who attempted to keep proper track of Boston's milk supply. As a result of determined effort the death-rate among children was reduced some 20 per cent. The difficulties encountered, however, were enormous. The worst of these difficulties was the abomination of "one cow's milk." This was found to consist of milk taken to small stables within the city limits and there recanned and bottled under the pretense that it was furnished by one selected cow. This abuse was effectually stopped. The rise of large dairy interests in recent years and of such milk supply methods as those practised by the Walker-Gordon company have done much, but they have not yet solved the problem for the great mass of the population. In company with others, Dr. Marcy has been interested in a method for the concentration of milk, by which New Hampshire selected pure milk can be kept for two weeks. This milk has been sent to the Bermudas and back in a fruit steamer without souring. Such a process promises to revolutionize the milk industry, so that families will only have to obtain their supply of milk, even as they now do their butter, once a week, or even at longer intervals. This will enable cities to draw their milk supply from a much wider area than heretofore. In answer to a question, Dr. Marcy said that the concentration process did not seem to throw out the milk sugar, nor the soluble albumins of the milk.

Dr. Goler, in closing the discussion, said that if city sanitarians look to the Board of Aldermen for appropriations for the improvement of the milk supply they will not succeed. After he has decided on what he considers necessary for some projected improvement in municipal sanitation, he tells the Board of Aldermen that a friend will supply the money if they do not, and that, after the success of his plan he shall tell the people of the city that they refused to supply the funds. He always gets the money.

Failure after Nephroptosis.—Dr. Augustin H. Goelet, of New York, gave some 20 reasons for the failure of operations for movable kidney. These consist of conditions that exist before, during and after the operation. Delay until indigestion has become organic rather than functional, or until kidney trouble has asserted itself or associated ptosis of other organs occurs, are among the preliminary causes of failure. Failure properly to prepare the patient leads to vomiting after the operation, which loosens the kidney and causes failure. Improper insertion of sutures, the use of suture material that is too readily absorbable, or that becomes softened in the deep tissues, or that is not absorbed and causes fistula, are other reasons for failure. Too early removal of sutures, or the retention of gauze in the wound for more than forty-eight hours, or permitting the patient to turn on the other side before the tenth day, or allowing her to get up before the three weeks are passed, or failure to wear abdominal belt, or too early resumption of the corset. All these may bring on failure of the operation. Dr. Goelet has had 174 cases in 134 patients, and none of them have been done without good results.

Necessity for Primary Union.—Dr. E. D. Ferguson, of Troy, N. Y., said that speedy union is the most important thing for securing proper fixation of the kidney. Tissue formed after chronic inflammation does not hold well. The fatty capsule must be gotten out of the way and the kidney substance itself be brought in contact with firm tissues so as to secure permanent fixation. The old method of running sutures through the kidney substance itself is not advisable, as the kidney is too friable to permit of success. He believes that absorbable suture should be used.

Main Reason for Failure.—Dr. Martin B. Tinker, of Clifton Springs, N. Y., said that the main reason for failure of nephropexy operations is the co-existence of general enteroptosis in many cases. He is in connection with an institution where many chronic invalids are received and at least half a dozen patients ad-

mitted after nephropexy operations have proved to have secured no relief because of this condition.

Dr. Richard H. Gibbons, of Scranton, said that notwithstanding the liability of failure, kidney operations must be done in movable kidney, since it saves the organ from other complications. Where enteroptosis exists Beyea's operation should be done in connection with the nephropexy.

Dr. Marcy, of Boston, considers that kidney operation should be followed by closure of the wound in order to secure primary healing.

Dr. Goelet, in closing the discussion, said that unless the fibrous capsule is used for the production of adhesions, the kidney substance will tear through quite as it would if sutures were passed through it. The fibrous capsule must then be made a part of the new adhesions, though it must be carefully stripped off, otherwise the kidney will not be detached from the colon. The lower part of the fatty capsule, he thinks, should be allowed to remain, to act as a cushion and support for the kidney. Where proper precautions are taken as to details of technic, before, during, and after the operation, there is no reason for failure.

Cancer of Rectum.—Dr. James P. Tuttle, of New York, said that there are only two methods of treating cancer of the rectum in vogue: Inguinal colostomy and extirpation of the growth. When an artificial inguinal anus is made, death is, of course, inevitable. The question for the surgeon must be, Is it justifiable thus to cut off the patient from all hope? Dr. Tuttle shows by the records of 43 excisions that the making of an artificial anus is scarcely justifiable, since so many patients not only are given relief by extirpation, but live for many years, and so many of them seem to be radically cured. This teaching is all the more important now that cancer is evidently on the increase, and since all the other methods of treatment, the X-rays, the Finsen light and various forms of serum therapy have all failed and are proven inapplicable to rectal carcinomata.

Fatality of Rectal Cancer.—The disease is always unnecessarily fatal, unless radical operation can be done. The usual length of life is about nine months. This is true with or without colostomy, and it is doubtful if colostomy gives much relief. Patients on whom no operation is done seem to live quite as long, and, under opium, have not much more pain. In these cases the patient's condition always becomes so pitiable toward the end that death is welcomed as a relief. Even the saving of one patient then would justify surgical interference, and if such interference also brings hope of relief from pain and death without the needless agony of gradual invasions of all the perineal tissues, the surgeon is doubly justified. One thing is certain, no method except extirpation has ever cured a rectal carcinoma. Life, after extirpation, is always from three to six months longer.

Colostomy.—There are only two indications for colostomy. One is scirrhus carcinoma of the rectum, with complete closure of the caliber of the gut, because of contraction; the other is extensive hemorrhage from soft malignant tumor. In this case the inguinal colostomy gives a chance for curettage in order to put a stop to the exsanguination of the patient. Even after colostomy, it must not be forgotten that the caliber of the gut very seldom becomes completely closed, and that more or less fecal material is sure to pass through it.

Benefits of Extirpation.—The radical operation, when reasonably successful, restores the patient to strength and usefulness, and gives immediate relief from the preceding discomfort. Out of 41 cases operated upon by Dr. Tuttle, 12 were unsuccessful, mainly because patients in advanced stages of the disease were operated upon at the urgent solicitation of themselves and friends. Two cases, however, operated upon when apparently in a hopeless condition, and requiring very extensive operation, have survived many years after the operation. Of the 29 patients who were discharged after extirpation, 22 can be traced. Of these, 16 have lived for more than two years after the operation. One patient who was presented to the Association has lived for eleven years, another for ten, a third for seven; two have lived 6½ years, and two over five years since their operation. It is evident then that carcinoma of the rectum is not nearly as hopeless an affection as it has been considered.

Causes of Fatality.—The first reason for death after operation for cancer of the rectum is because of the late diagnosis. In three cases the neoplastic process had gone so far that nodules of cancer already existed in the liver. In one of these cases extirpation was done because the patient had insisted that he did not want to go back home with that tumor in his rectum, and would prefer to go home dead. Dr. Tuttle was tempted to do the operation from the consideration that removal of the rectum and sphygmoid would cut off the portal blood supply, and so starve somewhat the growths in the liver. This patient is alive, three years after the operation. The next most frequent cause of death is sepsis. Owing to the unclean nature of the parts operated upon, infection is bound to take place occasionally, notwithstanding the surgeon's care. In one case gangrene took place, because the blood supply to the lower cut end of the bowel was cut off by clamping. The patient died on the third day. Dr. Tuttle always cuts off sufficient gut so as to get a free bleeding from the cut surface, otherwise there is danger of gangrene. He insisted very much on the necessity for earlier diagnosis of cancer than is the rule at the present time. Physicians evidently not making a proper examination.

Dr. Marcy, of Boston, in the discussion, said that early diagnosis of rectal carcinomata would save more lives than any improvement of the surgeon's technic, or any skill that he might obtain in the handling of these cases. Dr. Ferguson, of Troy, N. Y., said that these operations are often extremely difficult and require wide cutting.

Dr. Ulrich, of Chester, the President of the Pennsylvania State Medical Society, said that the best hope for these cases lies in the X-rays, which may prove capable of preventing the growth of cancer and causing the disappearance of nodules that already exist.

Extradural and Mastoid Disease.—Dr. Seymour Oppenhemier, of New York, said that mastoid disease may extend so as to cause a collection of pus in the skull, extradural, yet without occasioning any serious symptoms. It is only a question of time, however, until such symptoms may declare themselves. In the meantime the patient is always in great danger. The sinus is not far distant, and any involvement of it is almost sure to prove fatal. If the purulent material succeeds in finding its way through the meninges, through the dura, it may cause either meningitis or abscess. Meningitis is characterized by excitement, restlessness, a high bounding pulse and complaints of pain. Abscess is characterized by apathy, usually slow pulse and not infrequently by vomiting. These are general rules, however, that admit of exceptions and abscess may cause excitement and restlessness. The necessity for operations in mastoid disease are very evident, and the only way to prevent the present large fatality from sequelæ of mastoiditis is to endeavor to do an operation sufficiently radical, so as to get rid of all the purulent material in this region.

School Hygiene.—Dr. H. Ernest Schmid, of White Plains, N. Y., said that one of the hopes for the

health of the rising generation consists in the proper hygienic direction of schools. The first and most important consideration is the selection of a site for a school building, and this must be kept out of politics. Dr. Schmid called attention to the fact that many improvements in school customs might be introduced that would conduce to the preservation of the health of children. The habit of having children sit down very quietly in school for long hours is very unnatural for them, and very hard. Adults would find it extremely uncomfortable, and children, who are by nature restless, must sometimes find it a little less than torture. Improvements in teaching, such as the adoption of the vertical writing, instead of the slanting, promise to prevent some of the curvatures of the spine that now occur. Over one-half of all those reported occur between the ages of seven and ten years, when patients are going through their second dentition and the body development is greatest. It is at this period particularly that faulty habits in sitting are almost sure to be followed by lasting deformity of the bony skeleton.

Mental Strain.—There is too much teaching at the present time and children are tempted to do more than is good for their developing minds. Infant prodigies nearly always die young and there seems to be no doubt that the overdevelopment of the intellect causes a serious drain on the bodily development at an important period. Mathematical centers particularly are latest in their evolution, and it is sure to prove a serious strain on children to force them to take up this subject early. No permanent good ever results. The science is learned insufficiently and only a distaste is acquired.

Dr. Silver, of Rahway, N. J., in discussing Dr. Schmid's paper, said that teachers not infrequently are utterly inexperienced in the care of the health of children, and are themselves in need of hygienic instruction in order to be able properly to care for those under their charge. School houses in country districts are apt to be insanitary from the beginning, and to be very improperly cared for. Improvements in these matters would surely lead to better health among the children and consequently leave them capable of becoming healthier men and women.

Hygiene and Physiology.—Dr. James J. Walsh, of New York City, said that the present trend of law is toward the better regulation of school hygiene, and especially toward the appointment of proper medical inspectors for schools. It is important, however, that there shall be no exaggeration of reason, for certain hygienic precautions for this will almost surely injure and retard rather than help the cause of progress in school hygiene. It is a doubtful matter whether slanting writing has had anything to do with the faulty positions assumed by children and the consequent development of scoliosis. After having abandoned slanting writing for a while, the public schools are now coming back to it, with the impression that somehow the centuries of education before had found, unconsciously perhaps, a method in accord with certain natural qualities in teaching slanting writing. With regard to infant prodigies, the argument drawn from them is almost sure to be weak, since these precocious children are precocious because of a certain premature spontaneous development of intellect, and not because of overurging at school. Undoubtedly there is the teaching of too many things, and physicians must insist on the old doctrine of much and not many things at school.

The Teaching of Hygiene and Physiology.—Dr. Walsh said that undoubtedly great improvement could be brought about in school hygiene by proper teaching of the subject. The present teaching of hygiene and physiology in the schools is a farce. Too much space in the text-books is devoted to teaching what is not true with regard to the use of alcohol and tobacco. This has made the American school text-books on this subject the laughing stock of foreign educators. The Committee of Fifty under physiology of alcohol declared after consulting many authorities on physiology abroad, that most of the so-called teaching was intolerable. Long ago Uncle Ezek said: "It is not so much the ignorance of mankind that makes them ridiculous, but the knowing so many things that ain't so." The public school children are being taught too many things that are not so.

Oxygen for Alcoholism and Neuroses.—Dr. Cordelia Greene, of Castile, N. Y., sent a paper on the use of oxygen as the best remedy for various neurotic conditions. She emphasized its usefulness in alcoholism and in neurasthenia. In the beginning of the treatment of these affections pure oxygen is used by inhalation, and after a time the patient is encouraged to deep breathing in the open air.

Dr. DeLancey Rochester said, in discussing the paper, that open-air therapeutics has in his experience proved much more beneficial than chemical oxygen. What is needed is the teaching to nervous patients of the necessity for full and deep respiration.

Dr. Quimby, of New York, said that with poor circulation it was impossible for patients to take oxygen out of the air. In these cases stimulation of the circulation is first required. Pneumonia patients must not only secure a supply of oxygen, but they must get rid of the accumulated carbon dioxides as well. He has seen Cheyne Stokes breathing produced by giving too much oxygen, with consequent overproduction of carbon dioxide, and its retention within the system owing to the failure of it to diffuse through the impaired lung tissues.

Bacteriology of Dysentery in Children.—Dr. William H. Park, of New York City, said that there are two principal forms of dysentery in children in this country. The severest form, which is rather rare, is produced by Shiga's bacillus. It is a type of Oriental dysentery. The other form is produced by a bacillus resembling Shiga's rather closely and evidently bears the same relation as the paratyphoid bacilli do to the typhoid group, though not quite of the same nature. This second class of bacilli produce a different serum reaction to that of Shiga's bacillus, producing indol and an acid fermentation in maltose, which Shiga's bacillus does not.

(To be Continued.)

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

MEDICAL ASSOCIATION OF GREATER NEW YORK YEAR BOOK, 1903. 8vo, 200 pages.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. By Dr. S. S. Cohen. Volume 8. Rest, Mental Therapeutics and Suggestion. By Dr. F. X. Dercum. 8vo, 332 pages. P. Blakiston's Son & Co., Philadelphia, Pa.

HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT. By Henry R. Swanzy, A.M., M.B., F.R.C.S.I. Eighth edition. Crown 12mo, 580 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

MANUAL OF OPERATIVE SURGERY. By Sir Frederick Treves. New edition. Revised by the Author and Jonathan Hutchinson, Jr. In two volumes. Volume I, 8vo, 750 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.